

QUINQUENNIAL REVIEW
OF
FOREST ADMINISTRATION
IN
BRITISH INDIA
FOR THE PERIOD
1909-10 to 1913-14
TO WHICH IS APPENDED
THE ANNUAL RETURN OF FOREST STATISTICS
FOR THE YEAR
1913-14.



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REVIEW OF FOREST ADMINISTRATION IN BRITISH INDIA DURING 1909-1914.

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GOVERNMENT OF INDIA.

DEPARTMENT OF REVENUE AND AGRICULTURE.

FORESTS.

Simla, the 21st July 1915.

The following review of forest administration in British India during the five years ending the 30th June 1914 is published for general information.

Review of Forest Administration in British India during 1909-1914.

1. The areas controlled by the Forest Department are classed either as reserved, protected or unclassed State forests. In reserved forests boundaries are clearly defined and demarcated and rights carefully recorded at settlement; in protected forests boundaries are not always demarcated and the record of rights is less perfect; while in the large areas of Government waste, known as unclassed State forests, systematic management is not attempted and the control of the Department is confined, generally speaking, to revenue collection until suitable blocks are converted into reserved or protected forests or until areas are taken up for cultivation.

On the 30th June 1914, at the close of the quinquennial period now being dealt with, the total forest area in British India (including the Shan States) was 245,612 square miles, of which 96,297 square miles were reserved and 8,390 protected forests, the remainder (140,925 square miles) being unclassed State forests. It is a striking fact that of the total area of British India (including the Shan States) more than one-fifth is under the control of the Department and nearly one-tenth under regular protection.

Between 1909 and 1914 the net increase in the area of the reserves was 1,736 square miles. In the Central Provinces, no less than 2,237 square miles classed as suitable for the extension of cultivation were disforested for this purpose, while in Burma 3,751 square miles of unclassed forest were reserved. Elsewhere, the reserved area remained fairly steady, and in most parts of India no marked variations are to be expected. The reserved area, however, may be increased by the conversion of protected into reserved forests and this indeed is contemplated on a large scale in the United Provinces, while on the other hand the reserved area is from time to time reduced by the relinquishment of isolated blocks which do not repay the trouble and expense of management or by the disforestation of areas required for ordinary cultivation. In Burma and Assam, however, where there are very large areas of unclassed forests, considerable portions of which might, without prejudice to the demands of cultivation, be brought under permanent control, further provision for the future is necessary by the reservation of suitable areas.

During the quinquennial period forest surveys, mainly on the scale of two inches to the mile, were carried out over 5,300 square miles in all provinces except Bengal, by the Survey of India. At the close of the period 77 per cent. of the total area of reserved and protected forests had been surveyed.

2. Until his retirement in April 1913, the appointment of Inspector General of Forests was held by Mr. F. Beadon Bryant, C.S.I., when he was succeeded by Mr. G. S. Hart, C.I.E., the present incumbent. Mr. L. Mercer, C.I.E., the President of the Research Institute, officiated for three months in 1911 and Mr. M. Hill, C.I.E., for six months in 1914.

During the period under review the tours of the Inspector General extended over portions of Bengal, Assam, the United Provinces, the Punjab, the Central Provinces, Burma, Madras, the Andamans, Coorg and Kashmir. These tours are of the greatest value not only to the Government of India but also to Local Governments and local officers, as they enable an independent opinion on professional matters to be obtained from an officer of wide experience and tried ability. Thus, to quote two instances only, the value of Mr. Beadon Bryant's note on Forest Revenue and Expenditure in Madras has been warmly acknowledged by the Government of that Presidency, while Mr. Hart's note on the Burma forests deals with questions of vital importance and may have considerable influence on their future management.

In the provinces forest work is controlled by Conservators and in Burma and the Central Provinces by Chief Conservators. These latter posts are of somewhat recent date, having been created in Burma in 1905 and in the Central Provinces provisionally in 1906 and permanently in 1911. But the experience gained during the past ten years has been sufficient to shew that the appointments were fully justified both on financial and on administrative grounds. Technical work is co-ordinated; one adviser, in place of several, is given to the Local Government; and forest revenue increases. Recently a Chief Conservator has been sanctioned for Bombay and the creation of a similar appointment for the United Provinces is now under consideration.

3. An important reform effected in 1910 was the constitution of a Board of Forestry, composed of representative Conservators and Chief Conservators under the presidency of the Inspector General of Forests. Meetings are held at intervals of three years when the programme of research work is considered and questions connected with the Research Institute and College and forest administration generally are discussed. The first meeting of the Board was held between the 31st March and 6th April 1910 and the second between the 24th and 29th March 1913. As a means of furthering the cause of forest education and research, of stimulating commercial exploitation, of co-ordinating work and of interchanging ideas, the Board of Forestry has already proved its value. With the creation of this Board, the old Board of Control of the Imperial Forest College was abolished.

4. Officers of the Imperial Service are recruited under covenant with the Secretary of State and receive their training in England and on the Continent. After the abolition of Coopers Hill College in 1905, probationers were trained at Oxford, but in 1911 it was decided that training might be undergone at any British University possessing a forest school approved by the Secretary of State, and probationers can now be trained at Oxford, Cambridge and Edinburgh. Instruction at these centres is supplemented by a course of practical training in selected forests on the Continent under the supervision of a Director of Indian Forest Studies.

Up to the year 1906 members of the Provincial Service were recruited by the promotion of men who had served for a period of years as Rangers. In 1906, with the object of raising the standard of the Provincial Service, a system of direct appointment was introduced and the candidates chosen, either Rangers already in service or young men of good education and social standing, were required to undergo a third year of training at Dehra Dun in addition to the ordinary course of two years. On the completion of this course and of three years' approved service either as Ranger or Probationary Extra Assistant Conservator, the candidate became eligible for permanent promotion to the Provincial Service. This system, which was at best a temporary measure, proved unsatisfactory, and in 1912 a separate two years' course for Provincial Service candidates was prescribed. There can be no doubt that this is a great improvement on the old method of recruitment, but the candidates selected for training have not always been of the standard required, and the Government of India desire to impress on Local Governments and Administrations the importance of careful selection. The lectures, which are given in the new

Forest Research Institute buildings at Dehra Dun, are supplemented by an extensive course of practical training in various parts of India. The arrangements for controlling and housing the students are unfortunately still defective but an estate adjoining the Research Institute has now been acquired and suitable quarters are being erected.

Except in Burma and Madras Rangers are trained at the Forest College, Dehra Dun, but for some years past the

(c) *Subordinate Services.*

defects of centralized training have been manifest as, owing to the size of the classes, sufficient attention cannot be given to individual students. The inauguration in 1908 of an English course at the Burma Forest School and the opening of the Madras Forest College at Coimbatore in 1912 have had little effect in relieving the strain as, with additions to the staff, demands from other provinces have increased. As the present state of affairs is so unsatisfactory and as it is desirable that at Dehra Dun attention should be concentrated on the training of candidates for the Provincial Service, it has been decided to decentralize the training of Rangers. Arrangements to give effect to this decision are being made with Local Governments and Administrations and it is probable that within the next two years provincial schools will be started throughout India.

The training of subordinates below the rank of Ranger is carried out locally in forest schools and training classes.

5. During the quinquennium the increasing activities of the Department

Strength of the Staff.

have rendered necessary considerable additions to the staff. The sanctioned strength of the Imperial Service increased from 205 to 214, and the actual strength from 196 to 237. In the case of the Provincial Service the sanctioned strength (excluding probationers) increased from 194 to 213, and the number employed from 160 to 197. In addition, 32 Probationary Extra Assistant Conservators were employed at the close of the quinquennium.

The appointment of Chief Conservator of Forests, Central Provinces, and a fourth Conservator for Madras were permanently added to the cadre in 1911, while the reorganization of the cadre in the United Provinces and a Chief Conservator for Bombay have been sanctioned since the 30th June 1914. Following the territorial changes made in 1912, the three forest circles of Bengal and Eastern Bengal and Assam were distributed over the three new provinces and a second Conservator was sanctioned for Assam. Considerable additions were made to the subordinate and clerical staffs in several provinces.

6. Fire-protective measures consist chiefly in maintaining cleared fire lines,

Fire-protection.

external and internal, in organizing an efficient system of patrol, in enlisting the co-operation of the local population, in extinguishing any fires which may arise and in burning inflammable grass lands early in the season. **Conservation and improvement.**

During recent years the method of early burning has been extended experimentally to some Himalayan forests which are more than usually inflammable, and where regeneration operations are not in progress, and to areas in other parts of India in which the stock is not of sufficient value to justify the cost of complete protection.

Now that fire-protective measures have been carried out over considerable areas for several decades it is possible to come to some conclusion regarding their effect. In the majority of cases the forests have greatly benefited and there can be little doubt that in many types of forest the improvement that has occurred in the growing stock has been due mainly to the effects of fire-protection. At the same time, it must be admitted that in certain cases fire-protection, so far as the natural regeneration of the forests is concerned, has been decidedly harmful as the encouragement given to inferior species and weeds has wholly or partially prevented the survival of seedlings of the principal species. This result has been observed for some time past in the moister types of teak forest in Burma, and it is now generally recognized that in forests of this class fire-protection should be abandoned. Thus, during the last year of the quinquennium the area under protection in Burma has been reduced from 7,727 square miles to 4,548 square miles. It is doubtful, however, whether in teak forests of this class

- adequate reproduction can be secured merely by abandoning fire-protection and concentrated regeneration measures will probably also be required.

Another important example of the adverse effects of fire-protection on regeneration has recently come to light in the *sāl* forests of the Bengal and Assam Duars where continued protection has converted the undergrowth, which previously consisted largely of Savannah grasses, into a dense mass of evergreen shrubs and *sau* grass and has so affected the soil aeration that *sāl* seedlings entirely fail to establish themselves. Intensive weedings and experiments in cutting and burning the undergrowth have so far met with little or no success, and it is possible that clear felling and artificial regeneration with the aid of field crops may prove to be the only satisfactory method of ensuring the permanence of the *sāl* in these very valuable forests.

Among injuries from natural causes, local damage from storms, frost, snow and other agencies are of more or less regular occurrence, though no cases of special severity have been reported during the past few years. The abnormal drought caused by the partial failure of the monsoon in 1907 and 1908 had serious results and in the *sāl* forests of Oudh several lakhs of trees died. Investigations have shown that the death of these trees was due primarily to the lowering of the subsoil water-level following deficient rainfall, the mortality being most severe where there was a thick stratum of non-hygroscopic sand in the subsoil.

7. No light has yet been thrown on the cause of the mysterious spike-disease which attacks the sandal tree, though this question is still under investigation. In Coorg alone, nearly 20,000 affected trees were uprooted during the past five years, and although the intensity of the disease has not been reduced, it has not spread to areas previously unaffected. Among dangerous fungoid pests in Himalayan forests may be mentioned *Trametes Pini*, which attacks the blue pine (*Pinus excelsa*), obtaining admission through wounds, particularly where lopping is practised, and *Peridermium Cedri*, a deodar needle fungus hitherto believed to be of little importance, but now known to be the cause of considerable damage in deodar plantations in Kulu. Recently a virulent fungus, not yet identified, has been found on the roots of the *sāl* in the Bengal and Assam Duars, and it seems probable that this fungus is largely responsible for the unusual mortality which has been noticed for some years past among the *sāl* trees of this tract. Steps are now being taken to investigate its life history and to devise, if possible, remedial measures.

Among the noxious weeds at present occupying the attention of the Forest Department, the most important is *lantana*, a shrub which was introduced from tropical America in the early part of last century and which spread so rapidly that for many years past it has covered extensive tracts in Southern India to the exclusion of nearly all other forms of vegetation. Energetic measures for the eradication of this weed have been commenced in Coorg, where during the past two years 4,408 acres have been cleared and 1,241 acres cleared of regrowth, at a cost of Rs. 39,134. A scheme for the systematic eradication of *lantana* has also been prepared, and the plant has been the subject of special legislation in the shape of the Coorg Noxious Weeds Regulation of 1914.

Insect pests continue to be studied by the Forest Zoologist, but no measures of control have yet been put into force, although these may possibly become necessary when more intensive silvicultural operations are undertaken.

8. Forestry in India is closely connected with grazing, the intensity of which varies in different provinces, and as excessive grazing is harmful this question is unfortunately at times the cause of friction between the Forest Department and the people. In the Central Provinces and Berar, the sound policy has been adopted of granting liberal concessions in the case of cattle kept for agricultural purposes, higher fees being levied in other cases. In Madras, the grazing question became so acute that a special Forest Committee was appointed in 1912 to consider and report on this and kindred matters. The Committee recommended that forests in which scientific working and control are essential should be classified separately from those maintained primarily for the supply of village requirements and grazing, and that the

latter should be placed under the control of village panchayats or local committees. Effect is now being given to this recommendation and it is hoped that the measures adopted will result in smoother working. In excluding goats from reserved forests, so far as possible, the Madras Government have adopted a policy which the Government of India desire to commend to the consideration of the Governments of those provinces where this destructive form of grazing is permitted.

9. The afforestation of denuded hill-sides and ravine lands has received some attention during the past few years, particularly in the Punjab and the United Provinces.

Afforestation.

The Government of the United Provinces in 1912 announced a definite policy of afforestation which provided for the reclamation of ravine lands and the formation of fuel and fodder reserves in the drier tracts of the plains, and to give effect to this policy an Afforestation Division has been constituted. A systematic survey of waste lands has been started in the Jhansi, Hamirpur, Jalaun and Etawah districts, and the work of reclamation and afforestation has already been taken in hand. These measures, which affect so closely the well-being of the agricultural population, may have far-reaching results, and their progress will be watched with interest.

10. Plantation work continues to progress in many provinces. In the Andamans mangrove plantations for the supply of fuel extend over 685 acres, while Para rubber plantations now aggregate 191½ acres. Some 550 trees planted in 1906 were tapped in 1913-14 and a sample of 158 lbs. of rubber was sent to London for sale where it realized Rs. 1-9-0 per lb. *Padauk* sowings on areas cleared for the supply of fuel to the Settlement now cover 1,300 acres, while teak plantations, though of small extent, show considerable promise.

Plantations.

In Assam, rubber plantations have now been in existence for many years and are still being extended, but seeing that the selling price of *Ficus elastica* is low it would appear desirable carefully to examine financial results before further extensions are carried out.

In the Punjab, excellent progress has been made with the scheme for the formation of irrigated plantations for the supply of fuel in the Canal Colonies. These plantations when complete will cover 50,000 acres.

In Burma, satisfactory progress has been made in the extension of teak *taungya* plantations. Doubts have been expressed as to the wisdom of extending these plantations, on the ground that the staff and labour necessary for their upkeep is insufficient, but although it may be admitted that plantations which cannot receive adequate attention are of little value, the fact remains that these plantations have demonstrated that teak can be successfully grown in this way. As the demand for teak is considerably in excess of the supply, every effort should be made to increase the outturn of this valuable timber, and the extension of teak plantations in Burma should therefore be continued. Many of the difficulties of control now experienced are due to the fact that small plantations are scattered over wide areas and the marked success which has been obtained in the Nilambur plantations in South Malabar shews what can be done when a well-considered scheme is carried out.

11. Under the general declaration of policy made by the Government of India in 1894, the forests of India were broadly classed into (a) Forests the preservation of which is essential on climatic or physical grounds, (b) Forests which afford a supply of valuable timbers for commercial purposes, (c) Minor forests and (d) Pasture lands. The system of management depends upon the objects in view and necessarily varies with the class of the forest, so that while in classes (a), (c) and (d) simple rules are ordinarily sufficient, special treatment on scientific and economic lines is necessary in forests of the second class. The management of such forests requires carefully prepared working plans and as without such plans systematic management is impossible, their preparation becomes a matter of vital importance.

General.

Forest Management.

The progress made in the preparation of working plans during the past 25 years is shewn in the following statement:—

Period ending 30th June.						Area under working plans at end of last year of period.	Progress during the quinquennium.
						Square miles.	Square miles.
1889	...	...	...	...	...	912	...
1894	...	...	...	...	...	10,279	9,367
1899	...	...	...	...	...	21,620	11,341
1904	...	...	...	...	...	34,222	12,602
1909	...	...	...	...	...	48,104	13,882
1914	...	...	...	...	...	53,926	5,822

The progress made in the preparation of new working plans during the past five years is disappointing. It is true that existing plans have also to some extent been revised but the amount of revision work carried out does not account for the short outturn. Nor is it the case that plans have been compiled for the greater portion of the area for which they are required, since at the end of the year 1913-14 plans had only been prepared for 53,926 square miles out of 86,358 square miles for which they were required. Leaving out of account revision work, it may be said that in the United Provinces, Punjab and Bihar and Orissa plans have been prepared for the greater part of the forests for which they are required; this work is well advanced in the Central Provinces; less advanced in Bengal and Bombay; and backward in Burma, Assam and Madras. In the latter provinces maps of the forests are not in all cases available; but the main cause of the present state of affairs is the inadequacy of the trained staff and unless the staff is strengthened this difficulty will become more acute with the development of forest operations and the necessity for more intensive working, with the constant demands for revisions of existing working plans and, in provinces in which new reserves are being formed, with the increased demand for new plans. Apart from this, many of the areas which at present do not require plans will, as communications improve and new demands spring up, have to be brought under scientific management.

The Government of India desire to impress on Local Governments and Administrations the great importance of compiling plans with as little delay as possible for all areas for which they are required and they trust that in the next five years more substantial progress will be made. They recognise that without an adequate staff this cannot be done, but in recent reorganizations of provincial cadres provision has been made for special working plans officers and the necessity for this should not be overlooked when additions to the staff are considered.

12. The following statement shows the areas and percentages under various methods of treatment in provinces other than Bombay and Madras:—

Systems of management.						Percentage of total area under each method of treatment.			
Method of treatment.						Area in square miles.			
						1909-10.	1913-14.	1909-10.	1913-14.
System of clear fellings by compartments	...	...	...	...	...	5	14	014	036
Uniform system	...	...	...	...	...	184	150	523	387
Group system	...	...	...	...	...	1	95	003	245
Selection method with improvement fellings	...	...	...	...	...	11,700	15,802	33'228	40'759
Simple coppice	...	...	...	...	...	124	161	352	415
Coppice with standards	...	...	...	...	...	2,009	3,234½	8'262	8'342
Method of Improvement fellings	...	...	...	...	...	7,898	(a) 8,880	22 430	22'905
Unallotted	...	...	...	...	...	(a) 12,390	(a) 10,432½	35'188	26'911
Total	...	...	...	...	...	(b) 35,211	38,769	100'000	100'000

(a) Includes forests for which working plans have been prepared but which are not under any definite system of working.

(b) Includes 14 square miles of reserves in Bengal which are not under the control of the Forest Department.

(c) Excludes 4 square miles worked experimentally in the Northern Circle, Central Provinces.

There has been no marked increase in the area under high forest systems involving concentrated fellings. Nevertheless, in recent years the tendency has been to break away from the provisional methods of treatment known in India as selection or improvement fellings, in which measures for securing adequate regeneration are too often neglected, and to adopt more rational systems of management based on the silvicultural requirements of the species and the regeneration of the normal area. This tendency is most marked in the United Provinces and the Punjab, where several working plans on improved lines are now under preparation. In Burma, a system of working the teak forests by regenerative measures concentrated over definite areas was discussed at a Conference held in 1910; but so far little appears to have been done to give effect to the recommendation that in certain areas these improved methods should replace the method of selection fellings.

The substitution of improved systems of management for the provisional methods which have hitherto been followed is of great importance. The Government of India recognise that this can only gradually be brought about and that in many localities provisional methods must be continued for some time to come, but as experience is gained of the silvicultural requirements of the species and of the best methods of treatment, more advanced systems of management will, it is hoped, be adopted.

13. The successful working of the forests must depend largely upon the extent to which facilities for extraction are provided and a satisfactory feature of forest

**Exploitation and
Commercial Development.**

Communications and buildings.

administration during the past five years has been the substantial amount spent upon this object. Numerous forest roads have been constructed, the use of tramways and ropeways has been extended and a great deal done in the erection of quarters for the subordinate staff and rest-houses for inspecting officers. On these objects seventy-five lakhs of rupees were spent during the quinquennium compared with about 53½ lakhs during the five years ending 1909. The use of mechanical transport in the extraction of forest produce is becoming more important each year and this question was considered by the Board of Forestry in 1913. The conclusion arrived at was that under Indian conditions monorails and road trains had not so far proved satisfactory, but that there was much scope for narrow-gauge forest tramways and that experiments should be made with any other means of mechanical transport likely to cheapen extraction. Tramways are in use in the Andamans, in the Goalpara Division of Assam, in the Chakrata Division of the United Provinces, and in Burma, and in all cases considerable economy in transport has been effected, while an important scheme for the construction of a steam tramway in the Ramnagar and Lansdowne Divisions of the United Provinces is now being considered. In Burma, skidders are being successfully used to extract logs from the forests and from river beds. Another important work of this class in that province is the Wegyi boom which is designed to catch logs while the stream is in high flood, the logs being then conveyed to the railway by the help of slipways, gantries, winches and short lengths of tramline. The installation has cost Rs. 2,26,027, and although on the whole it has worked well, many difficulties have been experienced and it is doubtful whether it will be permanently maintained in its present form.

To provide the necessary expert advice a Forest Engineer was appointed in 1913 for two years, and he has been engaged on various projects in the United Provinces, the Andamans and Burma. But with the inevitable extension in the use of mechanical appliances for extraction and transport one Engineer for the whole of India will be insufficient and there can be little doubt that in course of time the major provinces will require special Engineers of their own.

14. The question of the agency by which forest produce should be extracted has given rise to considerable discussion in the past and although certain general principles may be laid down, the form of agency most suitable to any particular province or area must necessarily depend upon local conditions.

Agency of extraction.

In forest administration the object in view is two-fold—first, to conserve and improve the forests, and this is the first concern of the trained staff, and

secondly, to secure to the tax-payer the greatest immediate benefit from their commercial working. To obtain the best commercial results departmental or private agency should be employed as circumstances dictate and provided always that Government receives a fair share of the profits earned private agency should be freely employed. But when this is done the term of the contract should on the one hand be sufficiently long to enable the initial outlay to be recovered, while on the other hand provision should invariably be made for a revision of the rates of royalty at stated intervals so that Government may not be deprived of its fair share of any rise in prices which may take place. Should it be found impossible to employ private agency on these terms, departmental working should be adopted and if this cannot be undertaken by the trained staff without prejudice to its work of conservation and improvement, there seems to be no reason why a separate staff specially trained in commercial exploitation should not be employed. At times, indeed, departmental working is essential as, for instance, in the extraction of little known timbers or other products for which it is desired to create a market, when for any reason the system of extraction by purchasers breaks down, or when it becomes necessary to prevent trade manipulation or the creation of a monopoly.

Having regard to these general principles, which in their opinion should govern the decision as to the form of agency to be employed, the Government of India are inclined to believe that in some parts of India departmental agency might perhaps be profitably employed more extensively than at present.

15. In recent years there has been a noticeable increase in the demand for forest products and several industries dependent on their supply have been or are about to be started. One of the most im-

Commercial development.

portant of these is the utilization of bamboos, savannah grasses and firwood for the manufacture of paper-pulp, and to assist the development of this industry a special expert has been employed. With the assistance of the Titaghur Paper Mills Company, Limited, trials in the manufacture of bamboo pulp have been carried out successfully on a commercial scale, and concessions for the extraction of bamboos have been granted to two firms in Burma and Bengal. The outbreak of war has delayed the commencement of manufacture but as large supplies of the raw material are available the outlook is distinctly promising. In the Punjab, a concession for the extraction of spruce and silver fir from the Kulu forests for the manufacture of wood pulp has been granted. Matters are less advanced as regards the grass pulp industry, but this is being seriously considered. In the United Provinces and Assam, enormous quantities of suitable grasses are available and if trials on a commercial scale be successful an important industry may be established.

The extraction of tanning materials has received attention for some time past, particularly in the matter of obtaining a satisfactory extract from the bark of mangroves. For this purpose a factory was established several years ago at Rangoon, but owing to the want of expert supervision was not very successful. In order to test the possibility of producing extracts of good quality on a commercial scale the services of a Tannin Expert have been obtained and he will probably reach India shortly bringing with him a small portable plant. The forests of India contain many valuable tanning materials other than mangrove bark. The possibility of utilizing these will be examined by the Expert and his appointment may result in the establishment of a new and important industry.

During recent years much has been done to stimulate the local manufacture of matches, tests with numerous Indian woods have been carried out and a report regarding their suitability and the prospects of this industry has been issued. Several match factories on modern lines have been established, and if a sufficient supply of match woods of good quality can be assured, there is no reason why the industry should not grow rapidly. The regular and cheap supply of suitable wood is, however, a real difficulty, and the establishment of special plantations is a matter deserving the attention of Local Governments.

The tea-box industry has received special attention in Assam, where it absorbs a considerable portion of the outturn of the forests, and has steadily grown, especially in the Assam Valley. The Local Administration has fostered the industry by remissions of royalty on tea-box wood, by devising

measures for the protection of timbers used for tea-boxes, and by forming experimental plantations of *simal*.

Large quantities of sleepers have always been obtained by the Indian railways from the forests in this country, but as the supply of first class sleeper woods such as *sāl* and *deodar* is limited, experiments in the antiseptic treatment of less durable timbers have been in progress for some years past. The Indian forests contain many timbers which, so far as structural qualities are concerned, are at least the equal of imported sleeper woods, and these, if treated antiseptically, should go far to meet the demands of the Indian railways. The best and most economical method of treatment has not yet been determined but experiments are being carried out. Arrangements, however, have already been made with the Railway Board for the delivery of a large number of treated *chir* pine sleepers from the forests of the United Provinces while a similar supply of *Gurjan* sleepers from the Andamans is under consideration.

Another important forest industry in which, under departmental management, marked progress has been made is the manufacture of rosin and turpentine from crude resin obtained by tapping pine trees in the Himalayan forests. In the Punjab and the United Provinces, new distilleries have been erected and in 1913-14 these turned out 27,429 maunds of rosin and 58,803 gallons of turpentine compared with 6,584 maunds of rosin and 14,604 gallons of turpentine ten years earlier. The Indian demand for these products, which are largely used in the manufacture of paper, paints and varnishes, is considerable and the local outturn has already affected imports from other countries. In the Punjab, a modern plant has been erected near Lahore and a large increase in the outturn is also expected in the United Provinces. It is not too much to expect that a considerable portion of the Indian demand for rosin and turpentine will soon be met by the Department.

This account of the improved methods of extraction now adopted and of the new industries which have been started is sufficient evidence that the officers of the Department are fully alive to the importance of the commercial development of the forests and that they now recognise that efforts to secure commercial success are as much a part of their duties as the scientific management of the forest property entrusted to their care.

16. In times of famine or fodder scarcity grass operations form an important part of the work of the Forest Department, especially in Bombay, the Central Provinces, the United Provinces and Madras. In the past few years very large quantities of grass have been sent from the forests of the two first named provinces to the Deccan districts of Bombay, and in 1911-12 famine areas in Gujerat were supplied with grass from the United Provinces. In the famine of 1913-14 the serious shortage of fodder in the affected areas of the United Provinces was made good from the local forests and from the Central Provinces.

17. The following statement shows the growth of forest revenue and expenditure during the past 50 years, the figures in all cases being the annual averages of the quinquennial periods. Further details will be found in the statements appended to this review:—

Financial Results.

Financial Results of Forest Administration in British India from 1864-65 to 1913-14 (in lakhs of rupees).

Quinquennial period.	Gross revenue (average per annum).	Expenditure (average per annum).	Surplus (average per annum).	Percentage of surplus to gross revenue.
	Lakhs.	Lakhs.	Lakhs.	Lakhs.
1864-65 to 1868-69	37.4	23.8	13.6	36.4
1869-70 to 1873-74	56.3	39.3	17.0	30.2
1874-75 to 1878-79	66.6	45.8	20.8	31.2
1879-80 to 1883-84	88.2	56.1	32.1	36.4
1884-85 to 1888-89	116.7	74.3	42.4	36.3
1889-90 to 1893-94	159.5	86.0	73.5	46.1
1894-95 to 1898-99	177.2	98.0	79.2	44.7
1899-1900 to 1903-04	196.6	112.7	83.9	42.7
1904-05 to 1908-09	257.0	141.0	116.0	45.1
1909-10 to 1913-14	296.0	163.7	132.3	44.7

Progress has been continuous and it is a striking fact that within 50 years the surplus has increased nearly ten-fold. Even allowing for the rise in the prices of forest produce this is highly satisfactory, and it is to be remembered not only that a substantial portion of the annual expenditure is absorbed by the cost of research and of silvicultural work for which no immediate return can be expected, but also that all capital expenditure is met from revenue. There is, too, the fact that each year large quantities of forest produce are given free or removed by right-holders. The average annual value of the produce so removed is over 62 lakhs of rupees, but this is a rough estimate only and does not represent the amount which would have been realized had the produce been sold.

Both in 1912-13 and in 1913-14, the surplus was over a million pounds sterling, and it may be anticipated with some confidence that in the near future this figure will be exceeded. With the steady protection of past years the value of the forest property has increased; with the construction of new roads and the adoption of mechanical means of transport extraction is being extended and cheapened; new and profitable industries are springing up; and with the adoption of more concentrated systems of management an increased outturn will be obtained.

Prior to the 1st April 1911 forest revenue and expenditure in the major provinces were shared equally between Imperial and Provincial, but in the minor provinces were wholly Imperial. In consequence of the recommendations made by the Royal Commission upon Decentralization, the terms of provincial settlements were altered with effect from the date mentioned, and revenue and expenditure were in the major provinces wholly provincialized. In the North-West Frontier Province, forest revenue is Provincial while the expenditure is half Imperial and half Provincial. In the other minor provinces (Coorg, Ajmer, Baluchistan and the Andamans) both revenue and expenditure are Imperial.

Research.

18. The Forest Research Institute at Dehra Dun was established in 1906; but for several years work was hampered by want of accommodation. The new

General.

buildings were completed in 1914 at a cost of over two and a quarter lakhs of rupees and consist of a main block containing museums and offices and a number of subsidiary buildings, chiefly laboratories.

The Institute, which is under the administrative control of the Inspector General of Forests, is in charge of the President, Mr. L. Mercer, C. I. E., and contains five main sections each in charge of a research officer, the branches of work being silviculture, forest botany, economic products, zoology and chemistry.

19. The work of the Sylviculturist comprises a study of the requirements of the more important trees, the collection of statistics relating to

Sylviculture.

the rate of growth of trees and the volume production of typical crops, as well as investigations regarding improved systems of management. The *sāl* (*Shorea robusta*) and the *chir* (*Pinus longifolia*) are the principal species which have been studied, and a monograph on the latter is now in the Press, while the question of *sāl* regeneration is being studied in most of the important *sāl* tracts of India. In addition the Sylviculturist is associated with local officers in the preparation of working plans on improved lines and has carried out many other investigations. Among the subjects dealt with may be mentioned experiments to ascertain the best rotation on which to work bamboos, the collection of statistics in the eucalyptus plantations of the Nilgiris, the causes and effects of the drought of 1907 and 1908 in the *sāl* forests of the United Provinces and the results of continued fire-protection on the regeneration of *sāl* in the forests of the Duars. Statistical work, which in connection with silviculture has an important bearing on the future management of the forests to the best advantage, was taken up systematically in 1910-11. The results cannot be fully apparent for some time to come, but the value of the work is being realized in India, and in several provinces the need for special officers has been felt. In Burma, one such officer is already employed on this work; in the United Provinces, a post of Sylviculturist has been sanctioned; and in Assam and Bihar and Orissa, a similar proposal is under consideration.

A beginning has been made in the formation of a sylvicultural museum, worthy of the Research Institute. The photographic branch of the Research Institute is in charge of the Sylviculturist, and large additions to the collection have been made during the past few years.

20. The work of the Forest Botanist comprises systematic botany, the study of forest grasses, the oecology of important species and the diseases of trees. Under the head of systematic botany the work done has included the special study of important genera, the identification of specimens for forest officers, the measures taken for the preparation of descriptive lists and local floras and the upkeep of the Dehra Dun herbarium. Complete floras scientifically compiled are desirable, but for the present simple descriptive lists which will enable forest officers to identify trees and shrubs not by minute botanical features but by easily recognised field characters are all that is necessary. A scheme for their preparation on these lines was approved by the Board of Forestry in 1913 and the work is in progress in most provinces.

The herbarium has grown considerably, partly by the incorporation of the valuable Saharanpur collection in 1908 and partly by the accumulation of new specimens. In this connection mention may be made of two new species (*Albizzia Lathamii* and *Spodiopogon Laccii*) which have been discovered and named after two officers of the Department. Special attention has been paid to forest grasses, as it is desirable not only to increase the commercial exploitation of the valuable kinds but also to afforest the extensive and less valuable grass tracts. It has been shewn that fifteen widely distributed species can be utilized for the manufacture of paper pulp.

In oecological work attention has been mainly devoted to the study of the *sāl* tree, with special reference to the cause of the dying back of seedlings, while in connection with diseases the most important work of the Botanist has been the study of the disease of *Pinus excelsa* caused by the fungus *Trametes Pini*.

21. The activities of the Forest Economist have covered a very wide field. An enquiry into the properties and uses of *sāl* timber has been completed with the exception of the portion dealing with tests of strength. The antiseptic treatment of Indian timbers is being investigated and in connection with the utilization of bamboos for the manufacture of paper pulp, to which reference has already been made, a report on the supplies available and on local conditions has been issued.

The utilization of Indian timbers for industrial purposes has received attention and the suitability of woods for such purposes as matches, pencils, cement blocks, paving blocks, railway wagons, etc., has been studied. Among minor products, inquiries were carried out in connection with tan barks, gums, resins, oleo-resins, oil seeds, oil grasses and fibres.

The museum of forest economic products, which was started in 1881 by Sir Dietrich Brandis, has been steadily enlarged and is now housed in the new Institute at Dehra Dun.

22. During the past five years the post of Forest Zoologist has been held by four officers, and work has in consequence suffered, but recently progress has been good. The pests of *sāl*, teak, and *Pinus longifolia* have been investigated, over 120 life histories having been studied in connection with these trees alone.

A study of the teak bee-hole borer, *Duomitus ceramicus*, Walk, was commenced in Burma, and other borers have also been identified, some of which are likely to prove of importance. A special study of the lac insect and of the parasites of *Butea lac* has been in progress, and a revision of the life history of *Tachardia lacca* will shortly be published by Dr. Imms. The entomological collection has rapidly increased, and over four thousand species have been added during the past few years.

23. The Chemical Adviser works in close touch with other research officers, especially with the Forest Economist. Among the chief investigations taken up may be mentioned the determination of tannin values of barks and other products, the distillation of oil from oil grasses, from pine needles and from *deodar* waste, the extraction of saleable products from the gum resin of *Boswellia serrata* and the improvement and standardization of Indian turpentine and rosin.

Forest Chemistry.

24. A list of publications issued by the Forest Research Institute during the period 1909-10 to 1913-14 is given in appended Statement XX.

Forest literature.

25. An enquiry into the effect of forests on the retention of atmospheric and soil moisture has been carried out. A large mass of evidence was collected and the conclusions arrived at, briefly summarized, were as follows:—So far as India is concerned, sufficient data are not available to enable any definite opinion to be formed regarding the influence of forests on the actual rainfall, but the denudation of the soil resulting from the destruction of forest vegetation may be looked on as an established fact. As regards the effect of forest preservation on the run-off of rain water and the underground water supply, sufficient evidence is not forthcoming to justify any change in the principles on which the forest policy of Government has hitherto been based. At the same time, useful results might be obtained if meteorological stations were established where local differences in the rainfall, temperature and humidity inside and outside forest areas would be recorded. It is also important that adequate measures, where necessary, should be taken to prevent the destruction of forests on areas liable to denudation.

Relation between forests and the retention of atmospheric and soil moisture.

L. J. KERSHAW,

Secretary to the Government of India.

ANNUAL RETURN
OF
STATISTICS
RELATING TO
FOREST ADMINISTRATION
IN
BRITISH INDIA.

1913-14.

STATEMENTS.

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DIAGRAMS.

Statistical diagrams relating to Forest Administration in British India :—

1. Area under the control of the Forest Department compared with the total area of British India.
2. Growth of forest revenue and expenditure by quinquennial periods since 1864-69.

MAPS.

1. Map of India showing distribution of forest lands.
2. Map of India showing progress of Forest Surveys and Working-Plans.

STATEMENT I.

Area of Forests under the control of the Forest Department.

PROVINCE.			FOREST AREA IN SQUARE MILES.				Percentage of forests to whole area of Province.	REMARKS.
Name.		Area in square miles.	Reserved.	Protected.	Unclassed State.	Total.		
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bengal		78,875	(a) 4,871	(b) 1,711	4,030	10,612	13.5	(a) Excludes 17 square miles of reserved forest not under the management of the Forest Department.
United Provinces ..		106,773	(c) 4,121	(d) 33	(e) 39	4,193	3.9	(b) Excludes 54 square miles not under the control of the Forest Department.
Punjab		96,650	(f) 2,165	(g) 5,203	946	8,314	8.6	(c) Includes 160 square miles of leased forests, of which 4 square miles have recently been afforested.
Burma (including Shan States).		224,854*	27,332	..	114,111	141,443	62.9	
Bihar and Orissa ..		83,073	1,727	(h) 1,058	..	2,785	3.4	(d) Excludes 9,065 square miles of district forests not under the control of the Forest Department.
Assam		48,915	4,381	..	18,401	22,782	46.6	(e) Includes 10 square miles recently afforested.
Central Provinces (including Berar).		99,876	(l) 19,684	..	..	19,684	19.7	(f) Includes 366 square miles of leased forests, but excludes 110 square miles of reserved forests not under the control of the Forest Department.
Coorg		1,582	520	..	..	520	32.9	
North-West Frontier Province.		13,184	(i) 236	(j) ..	..	236	1.8	(g) Excludes 20 square miles not under the control of the Forest Department.
Ajmer		2,767	142	(m) ..	..	142	5.1	(h) Excludes 1,013 square miles of other protected forests not under the management of the Forest Department.
Baluchistan (portions under British Administration).		54,228	313	..	472	785	1.4	(i) Excludes 14 square miles of military and civil reserved forests.
Andamans and Nicobars		3,143	85	..	2,124	2,209	70.3	(j) 121 square miles of civil protected forests are not shown.
Madras		142,402	18,863	..	(k) 802	19,665	13.8	(k) Reserved lands.
Bombay (including Sind)		123,316	(n) 11,857	(o) 385	..	12,242	9.9	(l) Excludes 20 square miles not under the control of the Forest Department.
Total 1913-14 ..		1,079,638*	96,297	8,390	140,925	245,612	22.7	(m) There are only 115 acres of protected forests in Ajmer.
" 1912-13 ..		1,079,163*	96,867	8,492	133,564	238,923	22.1	(n) Includes 331 square miles of leased forests and excludes 2,120 square miles of the forest in charge of the Revenue Department.
" 1911-12 ..		1,071,051*	96,148	8,496	138,316	242,960	22.7	
" 1910-11 ..		1,071,010*	96,387	8,507	138,584	243,478	22.7	(o) Includes 325 square miles of leased forests and excludes 548 square miles of protected forests in the charge of the Revenue Department.
" 1909-10 ..		1,042,718*	96,474	8,814	140,293	245,551	23.5	

* The area of the Shan States, 54,728 square miles, is here included for the first time: the forests of these States are under the control of the Forest Department.

STATE
Progress in

NO.	AREAS ALREADY SETTLED AT THE COMMENCEMENT OF THE YEAR.			AREAS FINALLY SETTLED DURING THE YEAR.					
	Reserved forests.	Protected forests.	Total.	AREA.			EXPENDITURE INCURRED.		
				Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Rs.	Rs.	Rs.
..	4,888	..	4,888	..	..	..	..	..	..
provinces..	3,961	30	3,991	..	..	..	..	..	..
..	1,948	5,221	7,169	..	..	..	..	..	..
..	27,023	..	27,023	324	..	324	911	..	911
Orissa	1,723	..	1,723	4	..	4	..	..	..
..	4,381	..	4,381	..	..	..	..	..	..
provinces	23,720	..	23,720	7	..	7	..	..	..
..
st Fron- vince.	250	121	371	..	..	..	..	..	..
..
..	313	..	313	..	..	..	..	..	..
..	85	..	85	..	..	..	..	..	..
..	18,577	..	18,577	287	..	287	8,282	..	8,282
..	14,024	1,042	15,066	70	..	70	..	..	..
3-14 ..	100,893	6,414	107,307	692	..	962	9,193	..	9,193
2-13 ..	97,661	6,088	103,749	986	..	986	7,093	..	7,093
11-12 ..	97,407	6,090	103,497	310	..	310	19,512	..	19,512
10-11 ..	90,281	6,281	96,862	843	2	845	11,676	..	11,676
9-10 ..	90,011	6,162	96,173	2,096	..	2,096	13,601	..	13,601

MENT II.

forest settlements.

AREA UNDERGOING SETTLEMENT.								
AT COMMENCEMENT OF THE YEAR.			TAKEN IN HAND DURING THE YEAR.			EXPENDITURE INCURRED DURING THE YEAR.		
Reserved. (11)	Protected. (12)	Total. (13)	Reserved. (14)	Protected. (15)	Total. (16)	Reserved. (17)	Protected. (18)	Total. (19)
Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Rs.	Rs.	Rs.
4	..	4	22	..	22	61	..	61
3	20	29	2	..	2	..	..	..
31	205	236	..	..	..	10,648	..	10,648
510	..	510	975	..	975	134,753	..	134,753
147	..	147	19	..	19	2,838	..	2,838
182	..	182	107	..	107	11,329	..	11,329
17	..	17	34	..	34	..	..	..
..
..
..
16	..	16	..	..	..	..	..	..
..
302	..	302	274	..	274	1,085	..	1,085
70	..	70	1	..	1	..	..	..
1,342	231	1,573	1,434	..	1,434	160,714	..	160,714
1,220	231	1,451	1,025	..	1,025	9,724	..	9,724
1,739	205	1,944	634	248	882	19,149	43,485	62,634
3,436	205	3,641	5,692	..	5,692	17,992	..	17,992
3,322	205	3,527	867	..	867	1,12,971	..	1,12,971

STATEMENT III.

Demarcation and maintenance of boundaries.

Province.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	EXPENDITURE ON DEMARCATION DURING THE YEAR.	
								On new work.	On repairs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Ra.	Ra.
Bengal	110	922	534	1,575	322	1,121	3,018	4,015	9,643
United Provinces ..	42	1,831	2,659	4,532	20	1,552	6,104	19,011	7,969
Punjab .. ..	..	1,532	7,829	9,361	34	1,222	10,617	436	2,948
Burma	716	2,214	15,834	18,854	338	2,778	21,970	16,182	20,407
Bihar and Orissa ..	0	3,382	283	3,671	..	263	3,934	376	790
Assam	24	1,491	90	1,605	20	1,724	3,349	606	10,219
Central Provinces ..	110	11,139	21,098	32,347	184	3,369	35,900	1,525	24,224
Coorg .. ..	..	..	475	475	5	56	536	..	9
North-West Frontier Province.	..	47	730	777	..	136	916	..	447
Ajmer .. ..	..	11	232	422	..	158	401	..	211
Baluchistan .. ..	..	23	437	460	..	77	537	..	4
Andamans .. ..	..	..	50	50	..	86	136	..	..
Madras	221	18,148	16,085	34,454	789	1,775	37,018	6,965	20,347
Bombay	451	11,201	24,464	36,117	1,473	3,026	40,615	3,063	462
Total 1913-14	1,689	51,971	90,860	144,700	3,185	17,346	165,051	52,179	97,765
„ 1912-13	2,200	53,881	89,557	146,338	4,301	18,025	167,963	51,150	85,687
„ 1911-12	1,923	52,597	90,954	145,473	4,318	18,284	164,593	45,250	92,646
„ 1910-11	1,942	57,929	86,320	146,101	4,393	18,214	168,798	37,636	85,491
„ 1909-10	2,527	64,885	78,490	145,967	6,033	18,063	170,063	35,260	92,129

STATEMENT IV.

Forest survey operations.

No.	Forest surveyed.	NATURE OF SURVEY OPERATIONS.						TOTAL AREA OF DETAIL SURVEY.		Expenditure of the year including mapping and pub- lishing charges debitable to Forests.	REMARKS.
		1 st DETAIL SURVEY.		2 nd DETAIL SURVEY.		4 th DETAIL SURVEY.		1913- 1914.	Total up to date.		
		Area. (3)	Cost rate. (4)	Area. (5)	Cost rate. (6)	Area (7)	Cost rate. (8)	(9)	(10)	(11)	(12)
	(2)	Sq. m.	Rs.	Sq. m.	Rs.	Sq. m.	Rs.	Sq. m.	Sq. m.	Rs.	
..	..	..	..	..	..	..	..	..	3,265	..	
nces ..	{ Naini Tal ..	..	..	..	..	..	..	..	..	173	(a) 63 miles of boundaries have been traversed on a scale of 4"=1 mile.
	{ Ramnagar ..	..	..	..	..	..	..	..	4,139	320	
..	..	..	..	..	..	..	..	..	4,305	..	(b) 90 miles of boundaries have been traversed on a scale of 4"=1 mile.
	Myitkyina	161	37.7	(a) 50	..	..	..	214	..	..
	Katha ..	..	..	(b) 7	37.7	..	..	7	15,451	..	(c) 171 miles of boundaries have been traversed on a scale of 4"=1 mile.
..	Mandalay ..	..	..	(c) 35	..	..	..	35	..	..
	South Tenasserim.	(d) 89	56.3	(d) 95	56.3	..	..	184	..	..	(d) 66 miles of boundaries have been traversed on a scale of 4"=1 mile.
riasa ..	{ Palamau ..	..	..	(e) 11	23.9	..	..	11	1,762	..	(e) 22 miles of boundaries have been traversed on a scale of 4"=1 mile.
	{ Santal Parganas.	..	..	(f)	..	..	..	..	..	..	(f) 86 miles of boundaries have been traversed on a scale of 4"=1 mile.
	{ Darrang ..	..	..	(g) 1	..	..	..	1	..	..	(g) 5 linear miles of boundaries have been traversed on 4" scale.
..	{ Nowgong ..	(h) 40	46.9	(h) 33	46.9	..	..	73	2,591 (j)	17,516	(h) 7 linear miles of boundaries have been traversed on 4" scale.
	{ Sibsagar ..	(i) 19	..	..	..	..	..	19	..	..	(i) 59 linear miles of boundaries have been traversed on 4" scale. (Excludes revision of 66 square miles.)
	{ Lakhimpur ..	..	..	(j) 29	..	(j) 22	(k)	42	..	..	(j) Upper Dehing reserve (western block) specially surveyed for the Forest Department at their cost. 90 linear miles of boundaries of this and the Jaipur reserve have also been traversed on a scale of 4"=1 mile.
inces ..	{ Akola ..	..	..	(l) 7	10.2	..	..	7	19,432	716	(k) Not forthcoming.
	{ Buldana ..	..	..	(l) 139	..	..	..	139	..	..	(l) 11 linear miles of boundaries have been traversed on 4" scale.
..	..	..	..	..	..	..	..	..	478	..	(l) 387 linear miles of boundaries have been traversed on 4" scale.
Frontier	..	..	..	..	..	..	..	..	445	..	(m) 18 linear miles of theodolite traversing were run.
..	..	..	..	..	..	..	..	..	144	..	(n) Cost of mapping, publishing and special surveys only.
..	..	..	..	..	..	..	..	..	227	..	Excludes Forest Map Office Head Quarters charges Rs. 39,050.
..	..	..	..	(m) 302	78.5	..	..	302	302	23,602	(o) Excludes Forest Map Office Head Quarters charges Rs. 36,220.
	{ Salem ..	..	..	24	..	..	..	24	..	..	(p) Excludes Forest Map Office Head Quarters charges Rs. 38,602.
..	{ North Arcot	..	..	146	21.5	..	..	146	15,328	..	(q) Excludes Forest Map Office Head Quarters charges Rs. 39,171.
	{ South Arcot	..	..	7	..	..	..	7	..	..	(r) Excludes Forest Map Office Head Quarters charges Rs. 41,165.
..	..	..	..	..	..	..	..	..	12,973	..	
1913-14..	..	312	..	877	..	22	..	1,211	80,002	(n) 42,417	
1912-13 ..	..	59	..	703	..	..	..	852	70,601	(o) 2,872	
1911-12	..	33	..	873	..	..	..	906	78,830	(p) 1,827	
1910-11	..	305	..	446	..	..	..	841	77,033	(q) 1,026	
1909-10	..	120	..	1,370	..	..	..	1,490	77,092	(r) 5,708	

STATEMENT V.

Progress made in Working-plans.

VINOR.	AREAS FOR WHICH WORKING-PLANS HAVE BEEN SANCTIONED BY LOCAL GOVERNMENTS.		AREAS FOR WHICH WORKING-PLANS ARE BEING SANCTIONED.		Areas for which Working-plans have been sanctioned by the Forest Department.	Areas for which Working-plans have been sanctioned by the Forest Department.	Total Forest area as per Appendix I.	Percentage of area for which Working-plans have been sanctioned.	REMARKS.
	At close of the year.	During the year.	At close of the year.	During the year.	(6)	(7)	(8)	(9)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.		
..	(a) 4,065	..	..	..	1,610	(b) 4,067	10,612	47	(a) Excludes 17 square miles of other reserved.
Provinces..	4,077	..	..	..	(c) 93	23	4,193	50	(b) Excludes 54 square miles of other protected forests.
..	(d) 3,000	..	729	..	164	(e) 3,112	5,311	45	(c) Includes 14 square miles of unclassified State and leased forests recently afforested.
..	(f) 7,033	..	3,104	..	8,577	(g) 121,224	161,443	6	(d) Revised area.
Orissa	1,460	..	..	..	6	(h) 1,219	2,785	52	(e) Excludes 1,013 square miles of other protected forests not under the management of the Forest Department.
..	1,131	..	131	..	875	(i) 19,661	22,772	5	(f) Includes 18,401 square miles of unclassified State forests.
Provinces	12,102	2,570	2,570	..	309	2,115	10,614	74	
..	..	207	..	..	313	..	520	40	
West Frontier Province.	236	..	..	..	..	..	236	100	
..	140	..	..	..	2	..	142	99	
n	..	..	..	..	313	472	785	..	
..	317	..	..	391	85	1,416	2,299	14	
..	(j) 7,510	572	1,679	1,798	(k) 6,212	1,835	10,663	41	
..	0,719	16	764	537	1,026	3,020	12,242	53	
1913-14	50,601	3,325	8,978	2,791	20,663	169,254	215,612	22	
1912-13	50,851	868	9,017	3,415	20,102	(l) 151,607	238,923	19	(g) Unclassified forest areas transferred from column (6) to column (7).
1911-12	50,318	574	8,914	2,332	169,188	21,604	212,960	10	
1910-11	49,144	1,030	5,916	4,611	167,007	25,611	213,478	20	
1909-10	48,101	1,317	5,951	2,202	161,670	26,208	215,551	20	

STATEMENT VI.

Expenditure on communications and buildings.

PROVINCE. (1)	NEW WORKS.		REPAIRS.		Other Works. (6)	Total. (7)
	Buildings.	Roads.	Buildings.	Roads.		
	(2)	(3)	(4)	(5)		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bengal	31,756	17,487	20,297	24,645	6,734	1,00,919 (a)
United Provinces..	41,776	31,081	31,895	54,799	13,334	1,72,885
Punjab	(b) 51,811	(b) 45,285	10,773	7,741	6,075	1,21,685
Burma	87,415	(b) 89,657	62,007	47,710	20,292	(d) 3,07,081
Bihar and Orissa ..	30,566	23,261	7,653	14,035	2,571	(c) 78,086
Assam	52,026	90,338	18,350	22,190	13,978	1,96,882
Central Provinces ..	60,042	96,962	30,624	55,766	13,505	2,56,899
Coorg	7,366	8,811	4,933	2,984	2,203	26,297
North-West Frontier Province.	4,442	5,266	1,096	853	155	11,812
Ajmer	1,172	175	149	285	574	2,355
Baluchistan	36	..	333	..	..	369
Andamans	58	..	671	1,407	1	2,137
Madras	1,21,536	71,646	56,068	58,077	29,111	3,36,438
Bombay	91,605	31,521	16,746	47,381	15,167	2,02,420
Total 1913-14 ..	5,81,607	5,11,400	2,61,595	3,37,873	1,23,700	18,16,205
„ 1912-13 ..	5,78,632	3,43,091	2,43,413	2,89,256	1,34,231	15,88,623
„ 1911-12 ..	4,69,982	3,04,117	2,26,108	2,59,781	1,34,501	13,94,489
„ 1910-11 ..	4,70,257	3,48,784	2,12,482	2,42,365	1,27,048	14,00,936
„ 1909-10 ..	5,37,202	2,45,800	1,92,224	1,93,356	1,31,296	12,99,968

(a) This excludes—

(1) Pay of rest house-keepers, Rs. 1,277.

(2) Cost of land acquired, Rs. 1,223.

(b) Includes charges not separately shown under "Repairs."

(c) Excluding Rs. 441 unallotted under "Roads, etc."

(d) Excludes an expenditure of Rs. 3,484 on account of the School Division.

STATEMENT VII.

Breaches of forest rules.

CE.	NEW CASES OF THE YEAR.							DISPOSED OF DURING THE YEAR.						Cases pending at close of year.
	Cases pending from 1912-13.	Injury to forest by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission, or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.	Total cases.	CONVICTIONS.		ACQUITTALS.		TOTAL.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
A.	20	1	137	75	33	246	206	216	615	29	171	245	786	17
	195	2	792	887	90	1,771	1,900	1,806	3,172	..	..	1,806	3,172	70
	..	36	71	19	28	154	154	..	..	..	..	..	..	..
..	215	39	1,000	981	151	2,171	2,386	2,112	3,787	29	171	2,141	3,958	87
A.	14	7	60	43	19	120	143	107	297	19	78	126	375	17
	54	22	1,111	850	66	2,040	2,103	1,877	4,448	63	173	1,940	4,621	163
	1	47	118	15	9	189	190	..	..	..	..	..	..	..
..	69	70	1,230	908	94	2,367	2,430	1,984	4,745	82	251	2,066	4,996	180
A.	199	24	471	355	58	908	1,107	778	1,549	105	620	883	2,169	107
	6	18	4,673	6,088	94	10,873	10,870	10,874	15,641	..	..	10,874	15,644	5
	..	97	53	19	1	170	170	..	..	..	..	..	..	..
..	205	139	5,197	6,462	153	11,951	12,156	11,652	17,193	105	620	11,757	17,813	202
A.	331	9	587	56	180	832	1,163	789	1,505	123	374	912	1,960	211
	340	19	3,035	83	1,220	4,357	4,697	4,091	5,463	34	61	4,125	5,524	483
	..	11	31	3	6	51	51	..	..	..	..	..	..	..
..	671	39	3,653	142	1,400	5,240	5,011	4,880	7,053	157	435	5,037	7,493	694
A.	16	7	85	11	30	133	149	101	285	22	93	123	378	18
	41	5	632	115	70	872	913	870	2,774	8	31	878	2,805	33
	..	76	..	..	..	76	76	..	..	..	..	..	..	..
..	57	88	767	126	100	1,081	1,138	971	3,059	30	124	1,001	3,183	51
A.	21	2	87	11	62	162	183	125	479	21	94	146	573	37
	20	2	236	59	120	476	496	445	1,220	..	..	445	1,220	51
	..	13	5	..	..	18	18	..	..	..	..	..	..	..
total ..	41	17	378	70	191	650	697	570	1,699	21	94	591	1,793	88
A.	39	26	82	130	25	272	311	220	680	59	232	279	912	32
	889	73	5,376	6,273	584	12,306	13,195	11,842	33,073	13	16	11,855	33,009	1,340
	..	188	191	22	2	403	403	..	..	..	..	..	..	..
..	923	287	5,649	6,434	611	12,981	13,909	12,062	33,753	72	248	12,134	34,001	1,372
A.	4	3	3	8	2	16	20	16	28	1	2	17	30	3
	..	..	4	6	..	10	10	10	..	..	..	10	..	..

..	4	3	7	14	2	26	30	26	23	1	2	27	30	3
A.	138	..	92	65	4	161	209	210	672	39	158	210	830	38
	..	..	893	790	..	1,683	1,683	1,683	3,063	..	..	1,683	3,063	..
	..	12	22	5	5	44	44	..	..	..	..	..	..	..
..	139	12	1,007	860	9	1,888	2,028	1,893	3,735	39	158	1,693	3,893	38

STATEMENT VII—contd.

Breaches of forest rules—contd.

		NEW CASES OF THE YEAR.							DISPOSED OF DURING THE YEAR.							Cases pending at close of year.
		Cases pending from 1912-13.	Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission, or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.	Total cases.	CONVICTIONS.		ACQUITTALS.		TOTAL.			
									Cases.	Persons.	Cases.	Persons.	Cases.	Persons.		
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
A.	..	..	..	8	7	3	18	18	17	26	..	..	17	26	1
	B.	..	2	274	638	..	914	911	906	1,600	5	6	911	1,702	91	
	C.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..		..	2	282	645	3	932	932	923	1,722	5	6	928	1,728	92	
A.	3	3	20	6	1	30	42	34	81	2	27	36	108	6		
	B.	..	..	13	25	..	38	38	35	66	..	..	35	66	3
	C.	..	4	1	..	..	5	5	..	..	..	..	..	..	..
..		3	7	43	31	1	82	85	69	147	2	27	71	174	9	
A.	..	..	10	..	..	10	10	6	11	4	5	10	16	10	
	B.	..	..	..	..	..	..	..	..	..	..	..	..	..
	C.	..	..	..	..	..	..	..	..	..	..	..	..	..
..		..	..	10	..	..	10	10	6	11	4	5	10	16	10
A.	1,868	54	3,969	1,835	404	6,262	7,050	5,916	15,469	445	1,709	6,401	17,175	1,756		
	B.	3,570	76	15,532	6,917	1,659	27,691	27,174	21,182	41,152	..	..	21,182	41,152	4,381
	C.	..	1,056	577	261	17	1,911	..	..	..	..	..	..	..	..
..		5,238	1,180	20,078	9,033	1,480	31,177	33,101	27,098	56,618	483	1,709	27,584	61,327	5,740	
A.	363	119	601	270	80	1,109	1,472	1,061	2,752	112	200	1,176	3,011	295		
	B.	1,003	261	8,420	7,020	1,227	17,847	18,029	17,715	31,777	..	..	17,715	31,777	1,204
	C.	37	1,707	2,500	33	33	4,242	4,319	..	..	..	..	4,301	..	13
..		1,483	2,117	11,530	8,232	1,340	23,229	24,711	18,779	37,529	112	200	23,102	37,818	1,512	
A.	2,816	285	6,221	2,600	901	10,297	13,113	9,593	24,536	1,021	3,052	10,590	24,388	2,244		
	B.	6,198	480	41,100	30,671	4,530	70,769	82,048	73,427	140,518	123	207	73,550	140,635	7,827	
	C.	38	3,217	3,578	377	101	7,303	5,170	..	..	..	..	4,301	..	13
1913-11		9,052	4,012	50,809	33,038	5,511	94,300	101,531	81,026	174,084	1,111	4,139	84,411	178,223	10,084	
1912-13		8,053	3,109	46,501	28,052	5,291	82,910	90,162	74,137	161,025	1,279	4,016	75,416	166,841	9,114	
1911-12		7,773	4,162	45,279	27,176	4,753	81,366	89,163	69,220	163,076	1,831	6,126	71,051	154,400	8,559	
1910-11		7,632	4,213	38,616	27,306	4,066	74,161	81,796	63,678	140,817	1,290	4,384	64,470	145,202	(a) 7,606	
1909-10		7,022	4,526	36,529	27,400	3,597	72,142	79,164	61,597	133,306	1,225	4,012	62,822	138,408	(b) 7,547	

N. B.—A. Cases taken into Court.

B. Cases compounded.

C. Undetected cases.

(a) Excludes 7,285 undetected cases and 1,055 cases struck off.

(b) Excludes 1,780 cases struck off.

STATEMENT VIII.

Area protected from fire.

Province.	AREA IN SQUARE MILES.		Percentage of forests under fire protection to total area of reserves.	PERCENTAGE OF FAILURE TO AREA ATTEMPTED.		REMARKS.
	Attempted.	Protected.		Average of past five years to 1912-13.	1913-14.	
Bengal	719	710	14.8	1.5	1.3	
United Provinces	3,210	3,123	77.9	2.3	2.6	
Punjab	1,060	1,050	49.0	1.9	.9	
Burma	4,548	4,397	16.6	3.8	3.3	
Bihar and Orissa	(a) 1,689	(a) 1,681	97.8	(b)	.5	(a) Excludes protected forests under fire protection.
Assam	(c) 1,440	(c) 1,383	32.9	4.6	4.0	
Central Provinces	11,409	11,237	58.0	3.2	1.5	(b) Refers to the old Province of Eastern Bengal and Assam.
Coorg	157	154	30.0	3.7	1.0	
North-West Frontier Province	85	85	36.0	3.1	..	(c) Include partially protected areas.
Ajmer	(a) 141	(a) 141	99.3	0.4	..	
Madras	(c) 15,481	(c) 14,387	82.1	6.0	7.1	
Bombay	10,032	9,634	84.6	5.5	3.0	
Total 1913-14	49,970	47,983	51.9	4.6	4.0	
" 1912-13	51,659	49,833	53.3	5.2	3.5	
" 1911-12	51,182	48,333	53.2	5.6	5.5	
" 1910-11	50,712	48,718	52.6	5.8	3.9	
" 1909-10	48,510	45,768	50.3	5.6	5.7	

STATEMENT IX.

Causes of forest fires.

No.	Fires originating in Departmental Fire Conservancy operations.		External fires crossing the Fire traces.		Fires due to carelessness of outsiders.		Fires originating from intention or malice.		Fires due to unknown causes.		TOTAL.	
	No. (2)	Sq. M. (3)	No. (4)	Sq. M. (5)	No. (6)	Sq. M. (7)	No. (8)	Sq. M. (9)	No. (10)	Sq. M. (11)	No. (12)	Sq. M. (13)
..	1	..	8	1.6	9	2.1	8	4.8	4	..	30	8.5
os	33	13.2	12	11	39	8	11	25.9	36	27.4	131	85.5
..	6	1.1	14	1	81	2.3	30	6	30	1.2	161	11.6
..	24	26.8	28	25.8	50	36.7	30	34.3	106	27.9	238	151.5
a	2	..	3	..	16	4.5	..	..	16	3.7	37	8.2
..	..	..	13	6	3	..	1	6.5	5	..	22	12.5
es	56	22.7	18	11.6	71	54.8	7	2.4	106	81.2	258	172.7
..	1	..	1	..	2	..	10	2.7	..	..	14	2.7
ntier	..	..	..	..	4	..	8	..	..	..	12	..
..	1	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	6	..	..	..	4	..	10	..
..
..	81	26.7	183	353.2	383	128.3	341	214.3	762	396.8	1,750	1,119.3
..	114	57.7	151	15.9	614	96.0	244	62.1	969	185.4	2,092	417.1
3-14	319	148.2	431	426.1	1,278	332.7	690	359.0	2,038	723.6	4,756	1,989.6
2-13	227	79.8	409	212.7	870	207.5	606	392.3	1,531	999.4	3,643	1,891.6
1-12	281	131.5	451	487.5	1,782	833.0	871	536.0	1,524	856.4	4,909	2,844.4
0-11	260	90.8	480	344.5	1,746	687.4	765	400.7	1,652	681.0	4,903	2,204.4
9-10	321	152.0	515	564.9	2,102	529.5	652	597.4	1,722	1,320.8	5,312	3,254.9

STATEMENT X.

Area closed and open to grazing.

PROVINCE.	AREA IN SQUARE MILES.						REMARKS.
	CLOSED TO ALL ANIMALS		CLOSED TO GOATS, CATTLE, HORSES AND MULES		OPEN TO ALL ANIMALS.		
	Total		Total		Total		
	Whole year.	Part of year.	Whole year.	Part of year.	Whole year.	Part of year.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bengal	5,755	7	85	63	4,770	(a) 10,553	(a) Includes 17 square miles of other reserved and 51 square miles of other protected forests.
United Provinces ..	2,136	183	639	..	1,224	(b) 1,197	(b) Includes 14 square miles of reserved State forests recently alienated.
Punjab	515	552	323	21	6,950	8,314	
Burma	21,031	1,619	353	6	116,401	141,413	
Bihar and Orissa ..	1,418	..	651	..	1,729	(c) 3,794	(c) Includes 1,613 square miles of other protected forests not under the management of the Forest Department.
Assam	3,674	..	501	..	18,600	22,782	
Central Provinces ..	3,127	419	10,161	0	5,965	19,654	
Coorg	73	117	..	..	(d)	520	(d) The whole area is closed to br. ws. m.
North-West Frontier Province ..	86	..	103	..	47	236	
Ajmer	39	102	..	..	1	112	
Baluchistan	211	2	22	..	550	785	
Andamans	85	..	..	..	2,121	2,200	
Madras	3,242	101	760	3	15,556	(e) 19,663	(e) Of the total area 15,169 square miles were closed to goats only.
Bombay	2,102	214	9,381	331	2,789	(f) 14,910	(f) Includes 2,668 square miles not under the management of the Forest Department.
Total 1913-14 ..	43,591	6,690	23,302	437	176,336	249,361	
" 1912-13 ..	42,002	7,297	22,713	482	169,315	242,629	
" 1911-12 ..	41,568	7,660	21,414	561	176,347	246,550	
" 1910-11 ..	42,092	6,753	21,123	170	126,348	247,095	
" 1909-10 ..	43,205	6,093	20,016	195	178,517	248,625	

STATE
Protection

PROVINCE.	GRAZED ON PAYMENT, NUMBER OF ANIMALS.									
	AT FULL RATES.					AT PRIVILEGED RATES.				
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Bengal	2,572	1,939	430	..	36	152	116,996	49	..	27
United Provinces ..	65,574	181,057	70,811	3,607	7,210	33,780	139,770	39,272	..	685
Punjab	27,002	57,817	312,559	0,477	1,255	106	7,734	259,263	..	31
Burma	5,793	16,850	2,007	..	168	35	35	..	..	..
Bihar and Orissa ..	10,671	37,611	5,239	..	60	0,007	136,559	14,663	..	..
Assam	67,506	21,586	96	..	671	613	37	..	..	..
Central Provinces ..	411,935	1,517,855	613,315	180	8,323	14,203	1,086,821	456	..	..
Coorg	317	2,101	..	..	..	..	..	..	..	..
North-West Frontier Province.	2,311	1,085	424	..	113	..	..	..	..	..
Ajmer	813	5,555	..	4	..	5,262	27,527	..	..	3
Baluchistan	372	2,539	5,071	16	29	..	..	..	..	..
Madras	117,606	1,105,678	1,001,319	..	16	13,051	82,464	31,775	..	17,255
Bombay	10,698	(a) 100,629	35,359	869	2,093	162,173	(a) 1,225,629	113,586	..	2,499
Total 1913-14 ..	702,295	3,083,544	2,730,813	14,353	20,883	230,291	2,822,564	458,069	..	20,491
" 1912-13 ..	600,074	2,875,482	1,515,205	12,185	22,908	347,069	3,844,768	1,021,392	..	3,364
" 1911-12 ..	745,400	3,219,481	2,344,142	14,887	25,429	300,607	3,134,478	592,331	4	14,956
" 1910-11 ..	715,773	2,987,791	2,466,844	17,796	23,411	249,155	2,797,571	579,293	6	4,511
" 1909-10 ..	729,893	3,603,674	2,760,872	13,374	21,702	148,827	1,807,268	576,177	59	3,518

(a) Includes buffaloes in the Southern Circle.

MENT XI.

from cattle.

GRAZED FREE, NUMBER OF ANIMALS.									
BY RIGHT UNDER SETTLEMENT.					DURING PLEASURE OF GOVERNMENT OR OTHERWISE THAN UNDER SETTLEMENT.				
Buffaloes. (12)	Cows and bullocks. (13)	Goats and sheep. (14)	Camels. (15)	Other animals. (16)	Buffaloes. (17)	Cows and bullocks. (18)	Goats and sheep. (19)	Camels. (20)	Other animals. (21)
..	..	..	..	..	191	3,043	..	..	1
21,845	119,493	40,750	..	1,605	3,552	18,102	1,335	..	73
137,650	645,507	1,314,791	307	180,537	109	8,022	120	2,912	49
42,309	232,548	13	..	28	2,265	1,170	..	..	2,641
30,866	82,734	21,000	..	..	45	80	..	..	..
..	60	..	..	..	66,352	396,510	82,031	..	625
..	365	..	..	..	3,057	209,786	252	..	33
..	487	..	..	..	..	..	..	..	..
6,973	9,753	..	..	..	5,971	10,433	..	..	401
..	..	..	..	..	148	940	..	..	..
..	3,310	53,226	1	1,193	..	..	..	..	..
159	2,552	5,271	..	..	6,507	53,400	424	..	..
3,586	11,479	..	2	82	87,404	(2) 356,458	4,567	1,171	4,329
243,388	1,108,288	1,435,051	310	183,445	175,601	1,057,944	88,729	4,083	8,212
264,744	1,216,629	1,464,002	310	183,344	152,684	1,051,168	89,651	3,554	9,075
272,550	131,860	1,439,407	308	163,481	219,129	1,237,379	85,157	2,289	7,325
246,676	1,106,321	1,404,539	310	183,176	151,658	957,507	84,121	10,948	5,041
245,007	1,095,949	1,054,986	310	182,777	162,256	977,392	84,358	7,881	5,265

STATEMENT XII.

Area of plantations and the cost of the year's work.

PROVINCE. (1)	AREA IN ACRES AT CLOSE OF THE YEAR.			Cost of operations during the year. (5)
	Regular plantations. (2)	Taungyas. (3)	Total. (4)	
				Rs.
Bengal	(b) 1,267	225	1,492	1,208
United Provinces	6,470	..	6,470	10,709
Punjab	(a) 1,115	..	1,115	24,357
Burma	(h) 3,361	(i) 76,142	79,503	33,121
Bihar and Orissa	909	..	909	2,115
Assam	3,316	51	3,367	5,184
Central Provinces	(c) 647	(d) 6,328	6,975	549
Coorg	2,072	2,179	4,251	2,438
North-West Frontier Province .. .. .	..	..	..	..
Ajmer	182	..	182	22
Baluchistan	46	..	46	1
Andamans	1,018	..	1,018	13,697
Madras	(e) 27,544	(f) 2,905	30,449	67,181
Bombay	(g) 7,808	..	7,808	24,255
Total 1913-14 ..	55,755	87,830	143,585	1,84,837
.. 1912-13 ..	55,143	85,636	140,779	2,31,754
.. 1911-12 ..	60,634	87,983	148,617	2,25,850
.. 1910-11 ..	59,092	87,080	146,181	2,64,725
.. 1909-10 ..	62,078	84,721	146,799	2,76,920

(a) 85 acres excluded during the year.
 (b) 1 acre excluded during the year.
 (c) 178 acres excluded during the year.
 (d) 162 acres excluded during the year.
 (e) 2,312 acres excluded during the year.
 (f) 97 acres excluded during the year.
 (g) 49 acres excluded during the year.
 (h) 30 acres excluded during the year.
 (i) 325 acres excluded during the year.

STATEMENT XIII.

Outturn of forest produce.

PROVINCE.	RESERVED FORESTS.		PROTECTED FORESTS.		UNCLASSIFIED FORESTS.		TOTAL.		AVERAGE OUTTURN PER SQUARE MILE.							
	Timber and fuel.	Minor produce.	Timber and fuel.	Minor produce.	Timber and fuel.	Minor produce.	Timber and fuel.	Minor produce.	RESERVED FORESTS.		PROTECTED FORESTS.		UNCLASSIFIED FORESTS.		TOTAL.	
									Timber and fuel.	Minor produce.	Timber and fuel.	Minor produce.	Timber and fuel.	Minor produce.	Timber and fuel.	Minor produce.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	O. ft.	Rs.	O. ft.	Rs.	O. ft.	Rs.	O. ft.	Rs.	O. ft.	Rs.	O. ft.	Rs.	O. ft.	Rs.	O. ft.	Rs.
Bengal	23,308,516	9,05,963	380,221	20,459	1,747,313	27,552	25,430,044	3,53,974	4,785	63	222	12	434	7	2,307	33
United Provinces ..	15,061,523	8,74,163	418,270	3,784	54,609	11,002	16,129,492	8,88,940	3,800	212	12,523	115	2,188	440	3,800	213
Punjab	10,604,415	11,03,011	10,030,661	11,90,017	1,845,765	53,492	22,470,841	23,47,120	4,893	510	1,923	229	1,951	57	2,703	233
Burma	15,554,383	4,03,075	..	..	54,392,301	4,45,830	69,946,689	8,53,905	509	15	..	..	477	4	405	6
Bihar and Orissa ..	2,926,878	94,333	14,571,701	1,39,078	58,856	10	17,552,235	2,33,421	1,605	55	13,773	131	..	..	6,302	84
Assam	2,076,727	62,856	..	..	12,186,408	6,36,972	14,263,135	6,99,823	474	14	..	..	602	35	626	31
Central Provinces ..	46,534,731	22,34,811	..	..	..	..	46,534,731	2,34,811	2,364	114	..	..	..	..	2,364	114
Coorg	363,045	25,259	197,400	125	..	..	561,045	25,384	699	49	..	..	..	..	1,070	49
North-West Frontier Province.	(a) 4,674,153	36,881	..	..	..	..	4,674,153	36,881	19,806	156	..	..	..	..	19,806	156
Ajmer	458,442	23,708	..	69	..	..	458,442	23,837	3,223	167	..	..	..	..	3,223	163
Deluchistan ..	31,667	43,533	..	..	184,075	84	216,342	43,617	101	139	..	..	391	..	276	50
Andamans ..	586,510	2,556	..	..	1,235,045	2,601	1,821,555	5,157	6,900	30	..	..	581	1	825	1
Madras	18,232,867	18,11,089	..	..	10,268,406	(b) 56,743	28,501,273	18,08,432	967	96	..	..	12,803	71	1,449	95
Bombay	44,983,947	11,83,589	1,036,204	..	57,195	..	46,077,346	11,83,589	3,794	100	209	..	..	..	3,794	91
Total 1913-14	185,985,403	82,11,087	29,629,457	13,53,532	82,025,463	12,34,286	294,643,323	1,07,08,905	1,931	85	3,174	161	582	9	1,200	4
" 1912-13	185,318,638	85,14,039	29,761,695	13,40,686	76,639,543	12,29,040	290,718,886	110,84,074	1,913	83	3,387	159	574	9	1,217	4
" 1911-12	166,538,603	80,50,904	23,351,270	14,70,953	62,301,550	11,12,869	257,194,423	10,034,720	1,732	84	3,337	173	450	8	1,059	4
" 1910-11	180,096,649	73,24,137	37,015,742	8,51,191	62,567,784	13,52,464	260,583,175	93,27,822	1,661	58	4,457	100	451	10	1,070	3
" 1909-10	145,584,547	65,72,945	35,563,965	5,10,100	56,934,415	12,28,313	241,132,930	83,11,418	1,540	68	4,025	53	405	9	982	3

(a) Excludes lapsed or sold timber and Gumara Forests.

(b) Outturn of reserved and unreserved lands.

Part I.—Timber and Fuel.

PROVINCE.	TIMBER.					FUEL.				
	By Government.	By purchasers.	By free-grantees.	By right-holders.	Total.	By Government.	By purchasers.	By Free-grantees.	By right-holders.	Total.
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Bengal	44,633	7,871,783	17,093	..	7,034,409	7,510	16,860,110	2,134,006	..	17,501,635
United Provinces	1,60,798	6,858,730	75,988	423,250	6,518,766	7,14,424	6,814,325	242,953	2,838,024	9,610,726
Punjab	100,163	4,115,457	86,365	925,101	5,317,076	1,219,051	3,515,899	103,993	12,312,222	17,153,761
Burma	2,103,050	38,405,490	1,339,040	1,476,593	44,414,182	1,493,327	22,431,026	375,656	1,232,493	25,532,501
Bihar and Orissa	12,476	1,306,052	26,293	109,557	1,544,377	11,000	1,071,782	36,070	13,083,997	16,007,858
Assam	103,035	5,282,756	1,062,520	..	6,538,320	37,326	3,203,375	4,476,914	7,200	7,724,815
Central Provinces	1,127,033	6,371,100	1,324,537	71,985	8,894,745	1,455,453	24,194,510	10,762,752	1,227,271	37,639,986
Coorg	239,003	156,462	..	..	394,545	19,000	146,600	..	..	186,500
North-West Frontier Province ..	1,860	3,136,962	6,140	5,331	3,150,023	92,272	485,835	466,267	479,756	1,524,130
Ajmer	239	3,435	..	6,034	9,768	48,895	395,819	3,970	..	448,684
Baluchistan	2,316	8,600	0,025	..	14,940	18,820	182,592	..	..	201,402
Andamans	612,667	80,622	20,880	34,802	707,971	724,464	25,920	239,040	124,160	11,13,634
Madras	579,081	4,734,744	188,684	238,584	5,741,093	3,259,127	18,073,505	30,104	702,444	22,760,180
Bombay	1,300,086	4,532,623	133,336	78,020	6,044,065	4,530,816	28,051,582	20,138	7,429,845	40,082,381
Total 1913-14 ..	7,655,518	81,809,626	4,299,810	3,460,207	97,225,170	13,632,994	124,457,870	18,804,872	40,432,417	197,418,163
" 1912-13 ..	7,677,116	80,302,172	3,157,160	3,823,705	94,960,249	15,255,136	122,846,567	9,462,190	48,104,724	196,768,617
" 1911-12 ..	6,560,737	62,036,563	2,356,266	3,478,234	74,381,800	22,289,684	107,437,118	6,852,664	46,312,617	182,862,623
" 1910-11 ..	6,754,486	60,347,327	2,148,514	3,201,808	72,512,145	21,811,830	110,724,396	6,723,782	75,009,022	188,071,030
" 1909-10 ..	6,73,088	54,516,295	2,150,724	2,609,490	65,990,597	22,418,511	90,761,966	5,011,229	60,065,627	175,142,333

different agencies.

Part II.—Value of minor forest produce.

PROVINCE.	BAMBOOS.					GRAZING AND FODDER GRASS.					OTHER MINOR PRODUCE.				
	By Government.	By purchasers.	By free grantees.	By right-holders.	Total.	By Government.	By purchasers.	By free grantees.	By right-holders.	Total.	By Government.	By purchasers.	By free grantees.	By right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
.. ..	14	51,772	17	..	51,803	..	73,964	20,474	..	103,438	1,892	1,02,000	4,842	..	1,08,733
Provinces..	257	1,81,092	20	1,256	1,83,534	156	1,36,196	85,349	74,320	2,46,021	2,08,847	2,45,211	3,434	1,00	4,59,394
.. ..	3,300	..	13,099	215	16,614	..	4,564	2,01,249	10,62,149	2,167,062	1,02,152	61	15,006	44,725	1,62,544
.. ..	249	2,75,403	349	15,065	2,91,666	..	10,450	51,561	1,02,396	2,54,407	1,910	2,48,770	1,182	55,970	3,07,832
and Orissa	13,200	22,085	448	20,032	55,774	..	9,402	77	80,571	90,050	20	68,876	305	18,387	87,597
.. ..	69	89,105	4,947	..	44,121	..	76,381	1,80,044	15	2,62,440	27,041	1,43,114	2,23,112	..	3,93,267
Provinces	9,773	2,57,331	8,564	3,931	2,79,539	1,40,785	14,70,246	67,533	1,000	16,83,654	25,270	2,10,552	26,183	4,049	2,66,064
.. ..	..	(a) 1,091	..	..	1,091	..	950	..	122	1,072	..	23,221	..	..	23,221
West Frontier Province.	..	..	..	..	..	..	12,237	17,076	(b) 7,127	36,410	240	198	3	..	441
.. ..	3	307	..	..	400	2,125	8,317	1,413	15,410	22,274	225	938	..	..	1,163
.. ..	..	..	..	..	..	..	1,491	..	41,470	42,961	136	354	166	..	656
.. ..	40	86	249	172	497	..	..	..	..	..	1,070	290	2,540	751	4,660
.. ..	20,305	2,44,212	800	342	2,65,758	8,450	681,840	5,315	2,006	6,07,639	50,167	8,27,473	1,367	25,078	9,04,585
.. ..	148	97,085	800	16,663	1,14,756	2,053	4,50,564	12,311	2,93,873	7,07,701	89,890	1,43,690	1,400	66,152	3,01,132
.. ..	47,367	11,70,509	29,401	58,276	13,05,553	1,62,578	29,40,611	6,07,302	26,70,616	33,81,100	5,08,868	21,04,757	2,80,140	2,17,914	31,11,679
.. .. 1912-13	82,514	10,88,771	25,100	50,070	11,66,563	3,57,240	31,15,811	3,16,016	27,57,262	35,47,237	3,70,583	24,83,720	2,66,250	2,11,321	33,40,874
.. .. 1911-12	1,23,106	10,71,367	14,503	80,405	10,89,471	3,40,140	25,90,178	3,51,957	29,13,447	31,05,628	4,50,916	21,26,552	2,57,512	3,05,647	31,49,627
.. .. 1910-11	1,20,352	9,44,280	12,204	84,104	11,00,940	10,321	24,03,347	2,67,505	22,14,020	40,65,393	2,83,744	20,52,022	2,76,733	7,97,507	34,10,093
.. .. 1909-10	1,15,827	9,28,027	9,294	1,03,050	11,51,807	15,608	25,19,007	2,45,630	8,12,436	35,93,647	3,48,747	21,07,944	2,48,075	8,58,198	35,62,964

(a) Includes also price of 44,620 reeds.

(b) Includes fodder leaves.

(c) Excludes Rs. 504 being the excess dues on certain cattle.

STATEMENT XV.

Exports of forest produce.

ARTICLES OF FOREST PRODUCE.	QUANTITY IN TONS OF 20 CWT. IN THE CASE OF TEAK AND OTHER TIMBERS, CUBIC TONS.		VALUATION AT PORT OF SHIPMENT IN 1913-14.	
	Average of 5 years 1908-09 to 1912-13.	In 1913-14.	Total.	Per ton.
(1)	(2)	(3)	(4)	(5)
			Ra.	Ra.
Caoutchouc, raw -- -- --	310	1,163	78,67,293	6,765
Lao { Button -- -- --	1,333	1,093	13,07,080	1,106
{ Shell -- -- --	16,203	13,768	1,60,78,138	1,233
{ Stick, reed and other kinds ..	2,008	2,007	13,72,774	655
Cutch and gambier	3,444	2,913	9,32,438	317
Myrabolams -- -- --	72,213	61,820	66,91,335	92
Cardamums -- -- --	142	167	7,49,919	4,491
Sandal, Ebony and other ornamental woods ..	(a)	(a)	19,48,537	--
Teak -- -- --	45,145	50,737	78,64,761	165
Other timbers -- -- --	6,038	7,036	7,09,784	89
Total in 1913-14			4,54,25,118	
" 1912-13			4,07,80,613	
" 1911-12			3,96,36,932	
" 1910-11			4,26,71,543	
" 1909-10			(b) 4,20,96,717	

(a) Quantity (whether by weight or measurement) not recorded.

(b) Corrected figure. Includes "other timbers" previously excluded.

STATEMENT XVI.

Estimated value of forest produce given away free or at reduced rates.

PROVINCE.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Other minor produce.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bengal	2,986	22,079	11,498	58,176	4,842	99,581
United Provinces	69,423	46,271	1,287	1,45,698	6,106	2,68,845
Punjab	53,844	6,31,239	215	19,80,661	44,786	27,10,745
Burma	2,95,977	10,700	19,056	2,43,957	54,110	6,23,800
Bihar and Orissa	16,423	1,29,037	20,480	80,648	19,785	2,66,373
Assam	74,699	61,425	4,947	1,86,525	2,23,112	5,50,708
Central Provinces	22,032	72,232	22,324	3,78,635	45,833	5,41,056
Coorg .. .. .	..	..	..	122	..	122
North-West Frontier Province ..	2,349	21,937	..	24,103	103	48,492
Ajmer	760	307	..	16,832	..	17,989
Baluchistan	2,811	..	..	41,470	278	44,559
Andamans	1,294	9,080	421	..	3,291	14,086
Madras	30,245	7,815	1,241	9,292	27,344	84,937
Bombay	3,31,402	9,15,753	32,523	6,06,471	2,47,552	2,133,701
Total 1913-14	9,13,245	19,27,965	1,13,992	37,72,590	6,77,202	74,04,994
„ 1912-13	6,03,992	17,61,880	1,08,000	37,63,678	6,62,760	69,00,919
„ 1911-12	5,21,934	17,85,068	1,23,517	37,62,335	7,94,414	69,87,868
„ 1910-11	4,95,091	13,50,942	1,24,953	26,03,134	7,84,434	53,58,554
„ 1909-10	5,91,704	12,73,626	1,12,783	19,86,080	7,07,090	46,71,293

STATEMENT XVII.

Details of revenue and expenditure for the Forest year 1913-14.

							Rs.		
Receipts ..	(a) Wood ..	..	..	..	..	..	2,53,29,670	
	(b) Minor forest produce ..	..	..	..	..	..	26,08,433	
	(c) Forest stamps and commutation fees for forest produce ..	..	..	..	..	..	1,21,415	
	(d) Grazing ..	..	..	..	..	..	30,25,237	
	(e) Revenue from forests not managed by Government ..	..	..	..	..	..	3,69,665	
	(f) Miscellaneous ..	..	..	..	..	..	14,75,682	
Total Revenue ..							3,29,30,102		
Expenditure ..	A. Recurring ..	(a) Adminis- tration.	(i) Superior Staff ..	..	..	..	34,37,038	
			(ii) Subordinate Staff (including Ran- gers, Foresters and Guards).	..	..	..	32,16,957	
			(iii) Office Establishments (including Contingencies).	..	..	..	18,28,224	
		(f) Working ..	(1) Extraction ..	..	..	..	3,380,855	
			(2) Roads and Buildings ..	..	..	..	18,22,670	
			(3) Fire-protection ..	..	..	..	6,44,032	
			(4) Cultural operations ..	..	..	..	7,31,481	
			(5) Live-stock, stores and plant ..	..	..	..	5,18,219	
			(6) Working-Plans ..	..	..	..	62,281	
			(7) Rent for leased forests ..	..	..	..	3,70,472	
			(8) Miscellaneous ..	..	..	..	2,44,128	
	(c) Expenditure on realization of revenue from forests not managed by Government.						5,570		
	(d) Forest Science and Education (including all " A " and " B " charges of Imperial Forest College and Research Institute.*						3,21,578		
	Total ..							1,65,83,505	
	B. Extraordinary ..	(e) Forest Settlement ..	..	..	..	..	2,28,641	
		(f) Forest Survey ..	..	..	..	..	82,606	
		(g) Forest Demarcation ..	..	..	..	..	1,59,075	
Total ..							4,70,322		
GRAND TOTAL OF EXPENDITURE ..							1,70,53,827		
Net Revenue ..							1,58,76,275		

*Expenditure under this head in provinces has been included in (a) Administration.

STATEMENT

Summary of revenue and expenditure of the

BUDGET HEADS.	Imperial.	Bengal.	United Prov- inces.	Punjab.	Burma.	Bihar and Orissa.	Assam.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
REVENUE.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
I.—Timber and other produce removed from the forests by Government agency.	4,920	17,030	3,80,914	3,22,825	23,10,894	10,752	1,09,939
II.—Timber and other produce removed from the forests by consumers or purchasers.	6,551	15,31,683	31,00,413	9,08,277	83,10,249	4,57,919	8,28,276
III.—Drift and waif wood and confiscated forest produce.	..	5,320	7,629	28,310	3,18,391	896	19,423
IV.—Revenue from forests not managed by Government.	..	..	13,060	2,040	2,72,696	..	70,509
V.—Miscellaneous .. .. .	..	58,169	1,11,471	93,491	2,13,200	13,168	69,822
TOTAL REVENUE ..	(a) 11,471	16,10,111	37,12,487	13,64,913	1,14,25,430	4,91,735	10,97,969
EXPENDITURE.							
A.—CONSERVANCY AND WORKS.							
I.—Timber and other produce removed from the forests by Government agency.	480	195	3,90,427	1,24,277	7,02,650	7,402	58,890
II.—Timber and other produce removed from the forests by consumers or purchasers.	..	1,15,613	55,175	5,226	1,39,526	10,911	22,275
III.—Drift and waif wood and confiscated forest produce.	..	668	2,707	13,211	79,052	1,076	761
IV.—Revenue from forests not managed by Government.	..	..	3,612	..	143	..	1,685
V.—Rent of leased forests and payments to shareholders in forests managed by Government.	..	360	1,71,734	45,685	..	..	62,252
VI.—Live-stock, stores, tools and plant.	..	27,465	40,380	38,854	1,66,026	4,503	34,345
VII.—Communications and buildings ..	..	1,03,630	2,20,211	1,17,559	2,95,348	76,373	2,01,200
VIII.—Demarcation, improvements and extension of forests.	718	40,699	3,03,536	83,313	4,52,060	26,791	70,324
IX.—Miscellaneous .. .. .	..	3,884	25,927	9,023	36,158	2,404	19,291
Total A.—Conservancy and Works ..	(b) 1,198	3,01,514	12,18,709	4,37,148	19,60,963	1,29,460	4,71,023
B.—ESTABLISHMENTS.							
I.—Salaries	97,451	2,77,074	5,25,222	3,61,907	18,83,217	1,88,144	3,49,919
II.—Travelling Allowances	353	41,351	88,095	80,895	3,07,737	29,751	62,451
III.—Contingencies	294	19,618	63,988	39,227	1,22,984	8,293	26,847
Total B.—Establishments ..	(c) 98,098	3,38,043	6,77,305	4,82,029	23,13,938	2,26,188	4,39,217
GRAND TOTAL OF EXPENDITURE ..	99,296	6,40,157	18,96,014	9,19,177	42,74,901	3,55,648	9,10,240
SURPLUS ..	..	9,75,954	18,16,473	4,35,766	71,50,529	1,36,087	1,87,729
DEFICIT ..	87,825	..	..	..	..	..	..
Percentage of surplus to gross revenue ..	..	60	49	32	63	27	17
Net revenue per square mile of forest area under control of Forest Department.	..	92	435	52	51	49	8

(a) Includes revenue derived from Indore.

(b) Includes expenditure on account of Indore and Bangalore.

(c) Includes expenditure on account of Indore.

XVIII.

Forest Department in India for the financial year 1913-14.

Central Provinces. (9)	Coorg. (10)	North- West Frontier Province. (11)	Ajmer. (12)	Baluchistan. (13)	Andamans. (14)	Forest College and Research Institute. (15)	Forest Surveys (Im- perial). (16)	Madras. (17)	Bombay. (18)	TOTAL. (19)
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
2,40,567	2,72,166	21,594	3,916	11,092	4,36,276	..	..	7,63,872	17,63,632	66,80,298
27,61,340	54,415	2,33,664	26,748	2,258	7,226	..	..	30,02,336	31,67,308	2,45,00,672
3,381	..	2,801	29	..	..	..	..	17,451	4,697	4,08,328
2,370	..	1,517	..	6,360	..	..	..	..	5,824	3,74,376
1,78,786	2,046	7,165	3,204	278	2,309	5,806	..	4,16,661	1,61,695	13,37,871
31,86,453	3,29,227	2,66,741	33,897	19,988	4,45,811	5,806	..	42,00,320	51,03,166	33,801,545
1,30,711	24,379	19,381	1,747	3,552	1,41,326	..	..	2,28,409	7,34,472	26,58,298
1,50,341	0	466	284	..	100	..	..	1,31,452	55,951	6,87,326
13	..	310	..	..	..	..	..	2,243	134	1,00,175
..	..	..	..	133	..	..	..	..	..	5,573
..	..	31,848	..	..	..	..	..	16,590	32,837	3,61,306
40,006	11,759	520	637	125	16,322	44,353	..	1,30,771	18,882	5,74,948
2,46,914	26,494	10,281	2,066	398	2,208	22,399	..	3,46,735	1,99,208	18,71,024
2,04,449	45,534	1,900	2,379	36	44,725	..	37,743	5,13,723	1,57,248	19,99,178
30,789	1,062	3,392	62	231	3,535	20,149	..	11,829	53,709	2,21,445
8,03,223	1,09,234	68,098	7,175	4,475	2,08,216	86,901	37,743	13,81,752	12,52,441	84,79,273
9,33,349	59,365	49,793	13,790	18,174	58,956	1,72,597	..	11,65,495	11,35,169	72,80,222
1,25,483	7,875	8,610	1,549	2,263	6,419	16,016	..	2,49,947	1,44,649	11,73,444
91,074	2,040	4,522	1,081	398	1,085	22,824	..	1,38,623	57,618	6,00,516
11,49,906	69,280	62,925	16,420	20,835	66,460	2,11,437	..	15,54,065	13,37,436	90,64,182
19,53,129	1,78,514	1,31,023	23,595	25,310	2,74,676	2,98,338	37,743	29,35,817	25,89,877	1,75,43,455
12,33,324	1,50,713	1,35,718	10,302	..	1,71,135	..	..	12,64,503	25,13,279	1,57,58,090
..	..	..	..	5,322	..	2,92,532	37,743	..	..	..
39	46	50	30	..	38	..	..	30	49	47
63	290	575	73	..	77	..	..	64	124	..

Revenue, expenditure and surplus of the Forest Department

I RE-

DE.	1880-00	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-00.	1900-01
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
..	4,750	6,370	6,088	5,240	2,680	4,930	2,600	41,000	10,130	17,540	6,090	2,403
..	7,68,718	7,27,392	7,89,553	7,44,880	8,01,610	7,05,070	9,18,710	13,70,850	11,89,280	9,72,310	11,38,010	12,33,339
ces	17,14,150	16,37,870	17,31,514	16,52,540	17,09,860	16,58,250	16,01,340	14,44,820	13,80,670	15,08,040	16,14,740	15,05,463
..	9,21,713	8,34,370	10,20,074	8,12,030	9,13,300	10,32,430	10,14,500	11,07,720	10,68,470	14,74,430	11,00,770	13,50,842
..	40,40,786	43,21,068	41,85,414	56,60,000	57,85,100	54,36,780	56,95,830	63,78,050	72,15,200	83,50,890	78,12,050	80,54,444
..
..	3,70,408	3,26,793	3,36,129	3,82,830	4,88,500	4,35,090	4,25,030	4,38,440	3,84,820	3,98,180	5,08,100	5,49,521
ces	16,06,722	17,00,570	18,71,085	16,01,870	16,17,230	14,82,030	14,91,280	12,91,140	11,80,400	14,34,040	12,97,400	12,85,614
..	92,753	1,35,561	1,82,897	1,80,680	1,73,790	1,53,050	1,35,250	93,000	1,30,910	1,55,070	1,62,410	1,37,596
..
..	11,592	15,266	19,790	14,860	14,620	12,840	15,640	12,370	15,540	14,420	10,270	10,640
..	13,807	15,724	20,609	19,030	20,730	16,300	14,930	15,400	15,040	14,920	17,060	16,956
..	1,02,195	1,58,326	2,72,338	3,60,490	4,41,700	1,14,530	1,32,120	3,02,370	4,33,710	2,20,460	2,00,600	2,77,886
est. College h Institute.	1,237	1,184	1,788	1,080	1,080	2,790	4,310	2,850	2,890	2,360	3,210	3,697
s (Imperial)	220	2,104	257	520	240	80	510	400	220	200	420	327
Total	1,06,08,240	98,83,507	1,04,38,145	1,14,97,580	1,19,71,490	1,11,44,820	1,14,52,140	1,25,20,470	1,30,42,340	1,46,32,850	1,42,02,120	1,44,68,794
..	16,57,627	17,05,408	16,94,216	15,77,210	19,47,180	18,94,030	21,10,570	23,03,330	21,36,400	21,10,520	23,02,290	23,40,170
..	31,37,690	32,88,220	32,84,040	32,60,550	37,04,350	37,50,030	35,36,670	30,32,710	26,16,660	22,95,150	24,15,200	29,61,529
TOTAL	1,53,03,572	1,49,67,135	1,54,17,010	1,63,44,340	1,77,13,020	1,67,88,880	1,70,99,380	1,78,56,510	1,77,95,400	1,90,38,320	1,90,09,610	1,97,70,498
..	81,311	85,414	65,788	1,07,270	80,840	84,950	80,410	78,960	84,300	85,460	98,650	83,578
..	3,98,150	4,14,004	4,22,930	3,81,610	4,04,040	3,97,390	4,66,070	6,00,040	6,53,440	4,86,320	5,45,210	5,70,806
ces	9,03,151	9,19,195	9,58,211	9,28,540	9,63,020	9,36,310	9,42,860	9,06,340	9,17,850	9,72,030	9,42,380	9,63,430
..	6,46,855	6,53,041	6,40,275	6,56,270	6,36,430	7,22,120	6,78,420	7,23,300	7,71,940	8,55,340	12,11,460	8,87,343
..	10,06,644	13,88,780	16,98,080	18,05,000	18,62,500	19,17,990	19,33,600	21,28,820	21,06,610	21,26,190	24,47,440	26,54,717
..
..	2,57,120	2,83,832	2,67,525	2,64,070	2,08,220	2,72,010	2,80,140	2,82,010	2,88,830	3,05,360	3,57,140	3,47,072
ces	8,79,458	9,04,475	10,02,231	10,80,630	11,80,440	12,27,700	11,97,850	11,02,860	11,05,490	11,09,400	12,75,820	11,05,866
..	72,420	65,816	86,860	73,090	86,890	86,140	85,840	71,630	87,020	80,100	74,220	70,005
..
..	12,701	12,720	13,086	15,000	15,000	14,000	15,730	22,010	14,670	16,300	15,350	16,782
..	17,082	29,450	30,497	55,620	63,730	40,910	41,770	29,770	27,330	27,760	28,680	29,254
..	94,976	1,30,052	1,79,000	2,31,210	2,44,550	1,22,780	1,02,020	3,16,000	2,17,340	1,33,400	1,40,910	1,40,137
est. College h Institute.	29,616	33,191	44,347	50,400	65,630	65,080	67,030	67,380	60,020	63,370	73,550	71,238
s (Imperial)	21,188	21,024	26,882	22,160	27,900	29,840	20,950	31,970	33,950	33,970	33,080	33,071
Total	59,80,580	49,46,325	54,33,471	56,70,870	59,05,990	59,10,020	59,23,610	63,41,600	65,40,090	66,00,000	72,22,720	70,36,028
..	11,01,237	12,46,913	13,24,254	13,30,390	13,62,770	13,86,350	14,45,610	15,31,300	15,72,850	15,94,070	16,53,630	17,15,431
..	17,70,691	18,69,887	19,31,457	19,01,970	20,71,040	20,67,920	19,58,300	19,69,160	20,73,100	18,39,250	21,29,130	24,08,581
TOTAL	88,52,508	80,63,125	86,85,182	89,03,230	93,48,770	93,73,260	93,32,610	1,00,45,150	1,01,95,730	1,00,33,020	1,10,21,680	1,11,60,040
..	-76,532	-79,044	-59,100	-1,02,030	-78,160	-70,970	-77,720	-74,800	-65,170	-67,020	-90,460	-(11,115)
..	3,70,568	3,13,388	3,66,623	3,63,270	3,97,570	3,89,280	4,52,640	6,80,810	5,35,840	4,85,990	5,03,700	6,02,538
ces	7,51,008	7,18,681	7,73,303	7,24,000	7,46,840	7,21,040	6,68,480	5,38,480	4,68,820	5,96,000	6,72,360	6,02,024
..	2,75,858	1,81,329	3,79,790	1,56,380	2,76,870	3,10,310	3,36,080	3,84,420	2,98,530	6,10,010	1,89,310	4,63,490
..	33,34,142	29,33,179	24,86,134	39,53,000	39,22,000	35,18,790	37,62,230	42,50,130	50,18,050	59,21,700	53,04,610	53,90,727
..
..	1,22,360	42,041	68,604	1,18,760	2,20,230	1,67,080	1,39,890	1,54,430	95,990	92,820	2,10,960	2,01,540
ces	7,17,261	7,93,095	8,63,504	5,81,210	4,30,840	2,54,330	2,03,430	93,250	14,910	3,25,510	21,670	99,748
..	20,333	69,743	96,037	1,07,590	86,900	66,910	40,410	21,070	43,890	47,070	88,100	66,091
..
..	-1,100	2,346	5,813	-110	-1,280	-2,060	-90	-6,640	876	-1,680	-5,080	-0,136
..	-4,065	-13,723	-9,883	-36,590	-13,000	-24,610	-26,840	-14,310	-12,200	-12,840	-11,620	-12,293
..	67,220	25,274	92,429	1,29,280	1,07,240	-8,250	-30,100	45,770	1,56,370	91,069	1,10,660	1,37,749
est. College h Institute.	-24,103	-34,007	-42,559	-48,420	-63,540	-63,100	-63,640	-64,530	-59,030	-61,010	-70,340	-67,541
s (Imperial)	-20,983	-22,220	-20,925	-21,040	-27,060	-20,760	-29,440	31,570	-33,700	-33,050	-33,560	-33,664
Total	55,27,659	49,37,182	49,99,671	59,21,710	60,05,540	52,25,800	55,23,530	59,73,780	64,92,650	60,32,850	70,40,400	71,32,766
..	3,96,390	5,48,475	3,99,962	2,46,820	5,84,410	5,07,680	6,64,980	7,62,030	5,63,610	5,15,850	6,48,760	6,24,739
..	13,67,905	14,13,333	13,53,102	13,64,580	17,22,410	16,82,110	15,78,280	10,62,350	5,43,470	4,51,900	2,86,770	5,52,048
TOTAL	72,91,954	69,04,010	67,22,828	74,38,110	83,72,320	74,15,590	77,66,770	78,11,360	75,99,760	70,04,600	79,31,930	80,10,452

Pay of Inspector-General of Forests, Assistant Inspector-General of Forests, Office Establishment and undistributable and petty local items of revenue, and charges on...
 Figures up to 1910-11 for districts subsequently transferred to Bihar and Orissa.
 Figures up to 1910-11 for Eastern Bengal districts subsequently transferred to Bengal.

MENT XIX.

throughout India during the 25 financial years from 1889-90 to 1913-14.

VENUE.

1901-02.	1902-03.	1903-04.	1904-05.	1905-06.	1906-07.	1907-08.	1908-09.	1909-10.	1910-11.	1911-12.	1912-13.	1913-14.	PROVINCE.]
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
3,484	3,050	7,455	3,768	7,255	..	7,666	8,180	10,632	8,662	10,680	12,837	11,471	Imperial.*
12,02,237	12,56,247	10,65,523	11,67,472	11,18,512	10,65,850	11,07,050	11,84,345	10,80,640	11,67,444	11,22,442	16,00,001	16,16,111	Bengal.†
17,15,508	20,25,324	22,80,446	23,07,318	24,33,423	25,02,804	24,00,745	21,75,406	23,01,164	23,78,430	30,10,160	35,43,093	37,12,487	United Provinces.
14,47,538	15,86,408	17,17,707	18,74,413	17,81,053	16,05,284	14,57,449	12,88,792	10,32,633	12,17,088	13,10,077	12,30,033	13,54,943	Punjab.
53,73,038	67,30,033	82,68,535	80,50,756	1,03,20,860	98,12,510	86,63,089	10,02,032	93,58,077	1,00,70,117	99,67,504	1,00,22,393	1,14,25,430	Burma.
..	..	..	..	..	..	..	..	..	..	4,07,213	4,38,038	4,01,735	Bihar and Orissa.
5,12,093	5,80,200	6,75,732	8,15,677	11,06,096	13,20,592	14,30,447	14,46,368	15,34,732	18,00,635	11,46,320	11,42,091	10,97,000	Assam.‡
15,70,110	16,84,428	19,08,032	20,13,450	21,40,131	21,01,150	22,00,128	20,78,102	20,78,340	21,14,220	25,40,851	31,71,815	31,86,453	Central Provinces and Berar, Coorg.
1,70,212	1,90,730	2,24,031	1,93,087	2,45,119	2,35,900	2,74,760	2,24,330	2,13,129	2,70,055	2,95,170	2,81,652	3,29,227	North-West Frontier Province, Ajmer.
13,012	1,01,123	1,01,833	90,991	1,28,520	1,83,214	2,38,400	1,22,782	1,73,305	2,05,342	1,58,171	2,37,183	2,06,741	North-West Frontier Province, Ajmer.
6,865	9,736	13,884	17,297	15,002	18,335	20,861	27,615	23,090	33,840	26,361	36,596	33,397	Baluchistan.
14,712	19,336	18,303	22,555	21,481	21,195	21,820	23,305	18,720	23,212	20,117	20,159	19,088	Andamans.
2,06,903	3,26,035	4,32,381	6,20,796	5,82,511	6,07,027	2,10,822	2,02,018	2,59,477	4,16,773	5,22,160	4,49,025	4,45,811	Imperial Forest College and Research Institute, Forest Surveys (Imperial), Total.
3,545	3,252	3,038	3,557	3,080	4,570	6,137	4,630	4,909	4,080	5,550	7,011	5,808	Madras.
473	3,034	431	..	..	..	..	..	..	..	..	..	..	Bombay.
1,29,00,530	1,45,23,505	1,68,07,481	1,81,80,176	2,02,21,096	1,97,76,336	1,83,22,972	1,70,78,521	1,80,89,757	1,98,06,810	2,05,57,890	2,31,01,817	2,30,08,069	GRAND TOTAL.
25,43,430	26,13,510	26,57,727	28,29,216	23,07,601	32,00,009	38,03,830	38,00,910	41,78,331	38,80,411	41,68,621	41,12,473	42,00,320	
23,70,720	23,29,156	27,51,530	30,20,658	38,84,903	34,22,481	36,46,177	35,87,356	37,67,050	37,18,221	43,30,569	40,02,510	51,03,156	
1,78,23,715	1,91,71,540	2,22,16,717	2,40,29,050	2,66,74,593	2,94,01,496	2,58,62,070	2,54,50,709	2,60,23,704	2,71,05,454	2,90,57,350	3,22,07,800	3,33,01,515	
70,539	85,017	80,345	83,058	83,767	95,472	1,00,204	1,04,183	1,04,332	92,606	94,714	1,04,162	99,296	Imperial.*
6,57,131	6,38,014	7,03,593	6,88,589	5,93,509	6,33,386	7,13,394	6,83,091	5,91,099	6,13,285	7,06,374	6,00,701	6,40,167	Bengal.†
10,03,730	10,13,038	10,81,438	13,01,583	14,05,182	13,00,051	11,04,013	12,22,436	12,09,308	12,37,038	13,63,673	10,29,294	18,96,014	United Provinces.
6,39,335	9,60,095	11,50,415	10,12,351	12,05,004	11,41,403	11,76,096	8,51,627	6,67,762	7,40,542	7,65,146	7,90,176	9,19,177	Punjab.
26,46,457	28,90,263	35,52,404	34,46,921	39,38,063	30,59,733	35,51,532	37,17,217	36,83,018	38,42,799	41,31,162	41,38,581	42,74,001	Burma.
..	..	..	..	..	..	..	..	..	..	3,00,016	3,76,894	3,55,048	Bihar and Orissa.
3,29,112	3,27,498	4,25,484	5,03,656	5,03,010	7,07,800	8,00,373	8,01,340	10,12,541	10,87,340	8,41,013	8,09,011	9,10,240	Assam.‡
12,00,004	12,57,233	12,80,066	13,20,615	13,07,153	13,42,863	15,83,407	17,63,307	15,80,852	15,89,533	18,38,370	10,46,735	10,63,120	Central Provinces and Berar, Coorg.
92,333	89,437	92,101	83,820	85,748	1,02,855	1,04,810	99,605	1,07,822	1,07,679	1,21,174	1,01,514	1,78,514	North-West Frontier Province, Ajmer.
10,510	54,096	60,003	74,058	95,258	93,650	88,400	81,113	77,301	72,402	89,436	1,22,173	1,31,023	North-West Frontier Province, Ajmer.
15,027	16,377	16,630	15,611	17,131	16,715	18,188	19,016	19,272	19,918	22,343	29,714	23,595	Baluchistan.
24,480	25,240	21,007	24,672	25,743	26,322	31,258	36,586	26,549	26,387	28,047	28,527	23,310	Andamans.
2,04,607	2,31,702	2,06,121	3,12,431	3,35,985	2,95,136	2,29,267	1,80,041	1,04,150	2,26,063	2,61,732	2,55,141	2,71,676	Imperial Forest College and Research Institute, Forest Surveys (Imperial), Total.
76,230	66,338	50,330	61,124	80,680	1,37,186	1,58,038	1,83,191	1,00,174	2,19,183	2,63,141	2,69,145	2,98,338	Madras.
37,730	33,095	37,015	23,220	30,011	30,380	27,060	39,128	41,062	41,140	39,708	35,809	37,743	Bombay.
73,17,154	77,37,338	86,40,129	90,77,954	98,05,820	95,92,950	97,76,040	97,04,900	95,17,931	99,17,805	1,03,07,248	1,13,04,873	1,20,17,701	GRAND TOTAL.
17,09,534	18,35,552	17,53,030	19,80,098	22,66,802	24,80,060	27,80,857	29,17,261	33,39,635	32,25,601	34,14,882	31,50,482	29,35,817	
17,19,690	16,76,441	17,75,037	19,03,804	21,26,093	19,90,183	19,55,427	20,43,873	20,63,088	20,70,417	26,01,436	26,02,455	25,89,877	
1,07,46,358	1,12,40,331	1,21,60,993	1,29,07,856	1,42,58,521	1,40,03,799	1,43,12,933	1,47,26,031	1,49,20,654	1,52,44,023	1,69,46,566	1,72,07,810	1,75,43,455	
-76,055	-81,358	-81,890	-79,290	-76,512	-95,472	-92,638	-95,094	-93,700	-83,011	-84,034	-91,325	-87,825	Imperial.*
6,35,100	6,18,233	3,02,015	4,78,883	5,25,033	4,32,473	4,81,250	6,00,801	4,89,511	5,21,150	4,16,008	9,39,807	9,76,954	Bengal.†
7,09,700	10,11,326	11,90,008	10,05,736	10,28,246	11,06,013	12,16,732	9,52,070	10,91,589	11,40,561	10,52,487	19,14,090	18,16,473	United Provinces.
6,00,223	6,26,813	5,61,382	8,62,080	5,17,089	4,60,881	2,80,753	4,37,105	3,61,881	4,77,446	5,44,931	4,30,867	4,35,766	Punjab.
32,27,481	38,48,790	49,16,131	55,12,832	63,01,806	61,52,766	51,12,457	54,74,785	56,74,159	62,27,318	58,30,432	67,83,800	71,50,529	Burma.
..	..	..	..	..	..	..	..	..	..	1,00,297	63,091	1,36,087	Bihar and Orissa.
1,83,851	2,52,701	2,50,248	3,12,021	5,12,186	6,12,732	6,30,074	5,55,010	5,22,191	8,03,295	3,05,307	3,33,180	1,87,730	Assam.‡
3,78,212	4,27,110	7,17,003	6,92,814	11,41,078	10,58,281	7,00,721	3,24,855	4,91,488	5,21,093	7,11,475	12,25,080	12,33,324	Central Provinces and Berar, Coorg.
87,909	1,01,293	1,31,840	1,09,267	1,10,671	1,33,054	1,69,937	1,24,735	1,05,307	1,08,376	1,73,096	1,80,108	1,50,713	North-West Frontier Province, Ajmer.
-6,493	47,038	41,230	10,033	33,271	89,561	1,50,000	41,300	95,911	1,32,850	68,735	1,15,010	1,35,718	North-West Frontier Province, Ajmer.
-9,082	-5,611	-2,796	1,656	-2,120	1,620	11,076	7,600	4,718	13,028	4,018	9,882	10,362	Baluchistan.
-9,708	-3,991	-3,334	-2,117	-4,262	-5,127	-6,420	-13,281	-7,820	-3,175	-8,830	-8,368	-5,322	Andamans.
62,230	44,333	1,66,220	2,78,305	2,46,626	3,11,891	62,555	21,077	65,318	1,89,810	2,60,428	1,94,784	1,71,135	Imperial Forest College and Research Institute, Forest Surveys (Imperial), Total.
-72,745	-63,086	-56,301	-57,897	-77,580	-1,32,907	-1,51,901	-1,78,511	-1,91,265	-2,16,103	-2,67,891	-2,90,834	-2,92,532	Madras.
-33,257	-30,951	-33,504	-28,220	-30,014	-30,889	-27,960	-39,128	-41,062	-41,140	-38,708	-35,809	-37,743	Bombay.
55,83,402	67,91,227	81,67,355	91,02,222	1,03,56,170	1,01,85,380	85,46,323	82,13,024	85,71,826	98,50,014	96,90,021	1,17,89,944	1,19,89,308	GRAND TOTAL.
8,33,876	7,78,267	9,00,797	8,43,118	7,01,002	8,10,000	11,12,973	9,73,658	8,38,746	6,54,010	7,54,039	9,61,091	12,64,503	
6,80,016	6,62,715	6,75,602	11,16,764	13,58,000	14,32,293	16,50,750	15,43,483	16,94,568	16,47,807	16,66,133	24,00,064	25,13,270	
70,77,327	82,22,200	1,00,49,754	1,10,62,094	1,24,16,072	1,21,27,087	1,13,50,046	1,07,30,765	1,11,05,140	1,21,61,431	1,21,10,703	1,50,01,900	1,57,58,090	

Account of Madras and Bangalore. Excludes Home charges.

STATEMENT XX.

FOREST PUBLICATIONS ISSUED DURING THE PERIOD 1909-10 TO 1913-14.

I.—Publications of the Forest Research Institute.

	PRICE (exclusive of packing, postage, etc.)		
1.—LEAFLETS.			
	Rs.	A.	P.
The Larger Deodar Bark-Borer (<i>Scolytus major</i> , Steb.), by E. P. Stebbing .	0	4	0
The Blue Pine "Polygraphus" Bark-Borer (<i>Polygraphus major</i> , Steb.), by the same author .	0	3	0
2.—PAMPHLETS.			
Note on Lac and Lac Cultivation, by D. N. Avasia	0	2	0
Notes on Sal in Bengal, by A. L. McIntire	0	4	0
Note on Forest Reservation in Burma in the Interests of an Endangered Water- Supply, by A. Rodger	1	0	0
Note on Andaman Marble Wood or Zebra Wood (<i>Diospyros Kurzii</i> , Hiern.), by R. S. Troup	0	4	0
Note on the Collection of Statistical Data relating to the Principal Indian Species, by A. M. F. Caccia	0	10	0
Tables showing the Progress in Working-Plans in the Provinces outside the Madras and Bombay Presidencies up to 31st December 1908, by the same author	0	10	0
Note on Burmese Leza Wood (<i>Lagerstræmia tomentosa</i> , Presl.), by R. S. Troup .	0	2	0
Note on Carallia Wood (<i>Carallia integerrima</i> , DC.), by the same author . .	0	2	6
Note on Petwun or Trincomali Wood (<i>Berrya Ammonilla</i> , Roxb.), by the same author	0	4	0
Note on Burmese In Wood (<i>Dipterocarpus tuberculatus</i> , Roxb.), by the same author	1	0	0
Note on Burma Padouk (<i>Pterocarpus macrocarpus</i> Kurz.), by the same author .	1	0	0
A Note on the Preservation of Bamboos from the Attacks of the Bamboo Beetle or "Shot-Borer," by E. P. Stebbing	0	7	0
Note on the Best Season for Coppice Fellings of Teak (<i>Tectona grandis</i>), by R. S. Hole	0	4	0
3.—BULLETINS (NEW SERIES).			
1.—Note on Calorimetric Tests of Some Indian Woods, by Puran Singh . . .	0	2	0
2.—Memorandum on Teak Plantations in Burma, by F. A. Leete	0	10	0
3.—Note on the Relative Strength of Natural and Plantation-Grown Teak in Burma, by R. S. Pearson	0	4	0
4.—Second Edition of the Glossary of Technical Terms for Use in Indian Forestry, by A. M. F. Caccia, revised by R. S. Troup	0	6	0
5.—The Blue Pine Tomious Bark-Borer (<i>Tomicus Ribbentropi</i>), by E. P. Stebbing	0	2	0
6.—Note on the Oil Value of Sandalwood, by Puran Singh	0	2	0
7.—Note on the Chemistry and Trade Forms of Lac, by the same author . .	0	3	0
8.—Note on Some Germination Tests with Sal Seed (<i>Shorea robusta</i>), by R. S. Troup	0	2	0
9.—Note on Resin Value of <i>Podophyllum Emodi</i> and the best season for collect- ing it, by Puran Singh	0	1	3
10.—Note on Bark-Boring Beetle Attack in the Coniferous Forests of the Simla Catchment Area, 1907—1911, by R. S. Hole	0	3	0
11.—A further Note on some Casuarina Insect Pests of Madras, by V. Sabramania Iyer	0	14	0
12.—Note on the Bark-Eating and Root-Boring Beetles of Babul (<i>Acacia arabica</i>) by E. P. Stebbing	0	4	0
13.—Note on <i>Ligno Protector</i> as a possible means of preventing timber from splitting while seasoning, by R. S. Pearson	0	5	0
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22.—Note on the Causes and Effects of the Drought of 1907 and 1908 on the Sâl Forests of the United Provinces. by R. S. Troup	0 5 0
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24.—Note on Turpentines of <i>Pinus Khasya</i> , <i>Pinus Merkusii</i> and <i>Pinus excelsa</i> , by Puran Singh	0 2 0

4.—RECORDS.

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